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Petra Tušlová

Systematická povrchová prospekce v jižním Uzbekistánu

Systematic Field Survey in South Uzbekistan

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Vedoucí práce: PhDr. Ladislav Stančo, PhD

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Prohlašuji, že jsem diplomovou práci vypracovala samostatně, že jsem řádně citovala všechny použité prameny a literaturu a že práce nebyla využita v rámci jiného vysokoškolského studia či k získání jiného nebo stejného titulu.

V Hradci Králové dne 30. srpna 2012 *Petra Tušlová*

Abstract:

The following thesis summarizes two years investigation conducted in Sherabad District in South Uzbekistan. The research was focused on systematic field survey in immediate vicinity of *tepas*, artificial mounds created by centuries of a human inhabitation. Five different areas were examined in order to follow the settlement extant and chronology. The work was conducted by using satellite imageries in combination with topographical maps. The information collected on the fields were marked in PDA running GIS application and evaluated in computer. The results of the field prospection were verified by using complementary methods of the test pits and of the total pickups.

Abstrakt:

Následující text shrnuje dvouletý projekt, který proběhl v Šerabádském okrese v jižním Uzbekistánu. Výzkum byl zaměřen na systematickou povrchovou prospekci v bezprostřední blízkosti uměle navršených pahorků vzniklých dlouhodobým osidlováním, které se v centrální Asii nazývají *tepa*. Pět rozdílných oblastí bylo zkoumáno za účelem stanovení rozsahu původního osídlení a jeho datace. Práce byla realizována za pomoci satelitních snímků v kombinaci s topografickými mapami. Informace získávané při prospekci byly zaznamenány do GIS aplikace pomocí zařízení PDA, a vyhodnocovány v počítači. Výsledky povrchové prospekce byly ověřeny pomocí doplňkových metod testovacích sondáží a celkových sběrů.

Key words:

Central Asia, South Uzbekistan, Sherabad District, topographical maps, satellite imagery, systematic field survey, test pits, total pickups, GIS application.

Klíčová slova:

Centrální Asie, jižní Uzbekistán, Šerabádský okres, topografické mapy, satelitní snímky, systematická povrchová prospekce, testovací sondáže, povrchové sběry, aplikace GIS.

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Who, pray, would venture to maintain this,
when he hears of men of both ancient and modern times
telling about the mild climate and the fertility, first of Northern India,
and then of Hyrcania and Aria, and, next in order, of Margiana and Bactriana?
Strabo [II;1,14]

1 Introduction

The presented work summarizes the results of two-years of investigation conducted in the area of Sherabad District in South Uzbekistan. The project was initiated in the year 2010 as an extension of the ongoing research of Ladislav Stančo, the chief of the Czech expedition in Uzbekistan. His long-lasting research, commencing in 2008, focuses on the ground control of archaeological sites detected in satellite imageries and topographical maps and reconnaissance of the sites in the terrain (Stančo 2009; Danielisová, Stančo and Shaydullaev 2010). The two-year project described in the following text was focused on completing the previous Czech investigations and on testing the potential and suitability of field survey methodologies for future extensive research in Sherabad District. This work was accomplished by using complementary methods of verifying the results of the field survey and refining the chronology of detected scatters (by the test pits and the total pickups).

The project, conducted in a period of seven weeks, was carried out in September of 2010 and in October to November of 2011 as a cooperation of Czech and Uzbek archaeologists. Shapulat Shaydullaev of Termez State University enabled and endorsed the realization of the project, while Alisher Shaydullaev of the National University in Tashkent arranged all the necessities in the archaeological base situated in Akkurgan and also for the field survey. Additionally from the Uzbek side, Tokhtash Annaev from Termez State University was involved in the recognition and determination of the pottery findings from the field survey.

From the Czech team, Ladislav Stančo represented and supervised the project. The systematic field work itself was conducted by students of the Institute of Classical Archaeology from Charles University in Prague. Aside from the author, four Czech students were participating with the data collecting and processing during the two years investigation. These students were namely Věra Doležálková, Adéla Dorňáková, Viktoria Chystyaková and Tereza Včelicová (Machačíková). During the 2010 season Alžběta Danielisová from the

Institute of Archeology of Academy of Science of the Czech Republic joined the team to assist with geospatial data processing.

The research of 2010 was enabled by a specific grant of the Faculty of Arts at the Charles University in Prague under grant No. 261107 "Problem of Time in Humanities and Social Science". The following 2011 season was made possible by the project stipendium of the author and of individual stipendium of the participating students, again granted by the Faculty of Arts. Preliminary reports were published in Studia Hercynia (Tušlová 2011b, Tušlová 2012) and presented at a colloquium (Tušlová 2011a). The most diagnostic pottery fragments from each period represented in the ensemble were incorporated into a short report introducing the basic shapes and types detected during the project (Doležálková, Dorňáková and Machačíková 2012). The project was also supported by travelers' webpage *hedvabnastezka.cz* in cooperation with *HUMI outdoor* in a form of several promotional outfits. A short summary with several photographs of the 2011 season was published on the websites.[1]

The Ikonos satellite imagery used for the project was granted by the GeoEye Foundation.[2] Tools necessary for data collecting in the field were provided by the Institute for Classical Archaeology (Photo cameras and GPS devises), Termez State University (PDA in 2010) and by the author's colleague, Barbora Weissová (PDA and GPS during the 2011 season).

[1] The report is to read on: http://www.hedvabnastezka.cz/zeme/asie/uzbekistan/8536-archeologicka-expedice-jizni-uzbekistan-slavi-uspechy/.
[2] To apply for the grant: http://geoeyefoundation.com/.

2 The geography of the study area

2.1 The Surkhan Darya Province

The Surkhan Darya province, occasionally referred to as the Surkhan Darya Oasis or Valley, is located in the southernmost part of Uzbekistan. Its administrative centre is located on the right bank of the Amu Darya in the modern city of Termez, ancient Tarmita. The province covers an area of 20.009 square km. It stretches over 70-140km from west to east and 180-20km from north to south (Pugachenkova, Rtveladze and Kato 1991, 39; Figure 1). The region is surrounded by natural boundaries. It is enclosed from three directions by mountain ranges and the southern border is created by the Amu Darya, ancient Oxus, one of the biggest Asian rivers. These natural phenomena provide a frontier with present Turkmenistan on the west, Afghanistan on the south and Tajikistan on the east.

The Surkhan Darya province was a very important region, both historically and culturally, placed in special geographic location heavily influenced by the immediate presence of mountains. The enclosing ranges on the west which provided a natural defence are the Kugitangtau (with the highest peak Ayribaba of 3139m), on the east are the Babatag (with maximum elevation 2292m) and on the north and the north-west is Hissar Ridge (with the highest peak of Uzbekistan Khazret Sultan with 4643m) (Rtveladze 1990, 1). The height of the mountains blocks the northern wind, protecting the region from frost damage. For this reason it is possible to raise subtropical plants in the area, which was already known in the ancient world as Strabo had written in *The Geography*: "… *and, that Bactriana, too, which lies on the border of Aria, produces everything except olive-oil"* [II;1,14].

The climate is continental, i.e. winters are mild with little rainfall and occasional snow, summers are hot and dry (Stride 2004c, 30). The excellent climatic conditions and fertile soils facilitated human inhabitation of the Sherabad Darya Valley archaeologically proven in the mountain areas since the upper Palaeolithic (Pugachenkova, Rtveladze and Kato 1991, 39-40).

The mountain ridge of Kugitangtau is cut by a long path of more than two kilometres named "Dar-i-Akhanin", the Iron Gate, situated about eight kilometres west of the village of Derbent, which represented the shortest way to Sogdiana (Pugachenkova and Rtveladze, 1990, 16). It was the main highway linking India with the different regions of Central Asia. The path was used by numerous tribes for migration and invasion (Rtveladze 1990, 2). Similarly, in the second quarter of the second millennium BC, the Amu Darya passage was used for the migration of tribes from North Afghanistan, which brought to southern

Uzbekistan sedentary agricultural traditions of the East (Pugachenkova, Rtveladze and Kato 1991, 41). Central Asia in general was a crossroad of tribal movements, caravan routes and international trade between the East and the West (Rubakova 1999, 5).

The first major settlements in the Surkhan Darya province were founded during the Late Bronze Ages on the lowlands which started to be cultivated. These settlements feature long-lasting continuity of inhabitation durable from one historical period to another (Abdullaev 2011, 15; Pugachenkova, Rtveladze and Kato 1991, 41). However the established lifestyle continued alongside the nomadic way of live. The interaction of the steppe tribes with the farming culture has been archaeologically proven from the period preceding the Early Iron Ages. The mutual influence of those two communities facilitated by the close contact of both social structures affected each other in cultural and economic achievements leading to faster social progress. As a result, the herding and tilling live-style changed to a stockbreeding and semi-nomadic way of live (Askarov 1996, 441). The further development of the settlements was hastened by the intensive agriculture which was mainly based on the artificial irrigation, although dry farming might be practiced in the foothills (Stride 2004c, 30).

The other significant aspect aiding the habitability of the Surkhan Darya Oasis was a sufficient water source provided by several broad rivers which created very fertile alluvial plains (Stride 2004c, 30). Two principal rivers were used for the irrigation of the province. The Surkhan Darya flows from the Hissar Mountain range, the location where two fresh water rivers, the Tupolang and Karatag, originally converge. The Surkhan Darya has a north-east to south-west direction and was used to irrigate the eastern part of the province. The Sherabad Darya is based on the junction of the Shurob Say with its salty water and the Machay Darya with fresh water. It flows from the slopes of Baysuntau to the south-west in the direction of Sherabad and further south. The partly salted water is used to supply artificial irrigation channels of Sherabad Oasis. Both rivers are tributaries of Amu Darya (Figure 2). Sherabad Darya (named Kara Su in the plains), however, does not reach Amu Darya any longer as its waters vanish in the tangle of the irrigation channels (Abdullaev 2011, 13-15; Pugachenkova, Rtveladze and Kato 1991, 39-40; Rtveladze 1990, 1-2). Several other smaller rivers are supplying the province: Tupalang, Sangardak and Halkadyar (Rtveladze 1990, 1-2).

Historically, the area of the Surkhan Darya province was a part of ancient Bactria, called by the name Northern Bactria on the right bank of the Amu Darya in the scholarly literature. The precise area of the “northern” territory is discussed by several authors (for further readings see Rtveladze 1990), although the area can be roughly defined by the Hissar

Mountains to the north, by Kugitangtau Ridge to the west and by the Pamir mountains to the east (Rtveladze 1990, 4). Most of the area of Bactria was called Tokharistan in the Early Middle Ages and this was first mentioned in a Buddhist text from AD 383. In different Chinese texts from the fourth to sixth centuries AD it is named the territory of "Tukhara" or "Tukholo" and is also placed to the north of the Amu Darya, particularly to present-day South Tajikistan, Surkhan Darya province of Uzbekistan and to northern Afghanistan (Litvinskiy and Solov'ev 1985, 119).

2.2 The Sherabad District

The project's study area particularly focuses on the Sherabad District which is located in the south-west of the Surkhan Darya province, directly beside the border with Turkmenistan. The capital town of Sherabad is placed under the mountain ridge and on the river Sherabad Darya, about 60km due north-east of Termez (Figure 3). The major part of the district is composed of the Kugitangtau mountain range and of piedmont steppe zones, which both together cover about 79% of the overall district area which is about 2660 square km. The rest of the area, roughly 549 square km, consists of artificially irrigated lowlands and semi-desert steppe.[3]

The cultivated lowland was in the center of the project's interests. It is interlaced with ingenious network of channels bringing water to irrigate the field (called *arik*, Figure 4, 5) and diverting water to drain off the field (called *zeber*, Figure 6). The first channels are shallow, either dug in a ground or made of concrete and placed on the field or elevated. The later channels are several meters wider and deeper. An appropriate example is the *zeber* east of Ayritepa which is approximately 12m wide and seven meters deep (Figure 59).

Besides *ariks*, another elevated features in the landscape are tepas (singular: tepa, plural: tepas) - artificial mounds created by ruined and piled up architectural material and layered over centuries of the human inhabitation. Their dimensions and heights are variable, sometimes reaching up to 20m as in case of the citadel of Jandavlattepa (Stančo 2011, 17). The number of tepas in the irrigated lowlands, according to the soviet topographical maps compiled during the 1970s and 1980s in scale 1:100000, reach up to 87 individual sites. Another 26 mounds, which are not drawn in the map, are possible to detect from satellite imageries (Figure 7). However, greater number of tepas is expected while considering more detailed topographical maps compiled in the 1950s right before the major agricultural changes. Many of the tepas were quite recently entirely or partially destroyed by diverse

[3] The approximate area of the district is based on georeferenced map of the Surkhan Darya Province evaluated in the ESRI ArcGIS.

human activity and natural processes and constantly remain under the threat (for the complete list of the factors disturbing mounds see Stride 2004b, 23-25). Their destruction has been mainly connected with modern large-scale cultivation and amelioration processes which started during the Soviet period in Uzbekistan. During the 1960s and 1970s mechanized agriculture was introduced which caused changes of the traditional landscape. The semi-desert steppe, forming a wavy relief interwoven with small tepas, was ploughed into long and plain cotton fields (Mantellini, Rondelli and Stride 2010, 2; Rondelli and Stride 2012, 8). The first cultivated fields in the area are visible on the Corona satellite imagery captured during November of 1970 (Figure 7). The fields start on the eastern border of the Sherabad District and follow the north-south direction. The western part of the district is locally cultivated but always only in a small extant preserving the high percentage of semi-desert steppe.

The total number of damaged tepas caused by the amelioration processes remains unknown for the Sherabad District. However, to give a comparative example we may turn to the results of the multidisciplinary Middle Zeravshan project ongoing in Samarkand District (Rondelli and Stride 2012; Mantellini, Rondelli and Stride 2011; Rondelli and Tosi 2006; Rondelli and Mantellini 2004). In this project satellite imagery, aerial photos and detailed topographical maps were combined to detect elevated archaeological sites (kurgans and tepas) through remote sensing techniques (Mantellini, Rondelli and Stride 2011, 2). During following ground control of the predicted sites alarming results were revealed. Over 40% of all archeological sites were fully destroyed in the past 50 years (Mantellini, Rondelli and Stride 2010, 6).

Similar statistical or other such a conclusion including the Sherabad District cannot be made, as the topographical maps in scale 1:10000 and 1:25000 from 1950s used by the Middle Zeravshan Project are at the moment inaccessible for the investigated area. However high number of destroyed or partly ploughed sites may be also supposed as both Oases began to be cultivated by the same time and feature similar characteristics in general.

3 The agricultural conditions

The favourable climatic conditions of the district are reflected in the intense agricultural activity. The main crop of the Sherabad Darya Valley is cotton (Figure 8). Its cultivation was increased during the Soviet period when a dense network of irrigation channels was built (Stride 2004a, 61).

Other agricultural production in the area includes spring and autumn vegetation common in the whole of Central Asia. In early spring, cereals, particularly wheat, barley and miller, are planted which are then harvested at the end of May. Autumn production includes cotton, corn, sorghum and cucurbitaceous which are sown after the May crop is harvested (Stride 2004a, 136). The cotton bushes remain on the field until November when they are cut and collected. During September field prospection of our team were further encountered rice, sunflowers, pomegranates and melons covering small fractions of fields.

During the two years investigation the Czech team familiarized itself with the agricultural system in Uzbekistan which is based on a variation of principal crops, cotton and grain, that are annually rotated. This is very important knowledge for field survey planning as almost every extensive cultivated field has low vegetation cover and is therefore possible to investigate.[4] While surveying in autumn, the fields seated by cereals are uncultivated. In such a case, every year can be investigated only the harvested fields and have the ability to cover a continual area in a two year period. During the first season of our research, several cotton fields around the area of investigation were drawn into the GIS database in connection with satellite imageries and were then compared with the real situation the next year. While considering the cotton and grain rotation, the system worked in approximately 95%. On only one of the investigated fields the cotton cover persisted into the next year.

Diverse vegetation such as rice, corn and sunflowers cannot be included into the previous statistics of rotation as they are unpredictable. Additionally, sunflowers fields of the first year turned into the cotton fields the next year and therefore the visibility and passability did not distinctly change from year to year. Grasslands field cover also persisted to the other year with no changes or started to be cultivated (most often they were turned into the cotton filed).

The filed cover and factors of visibility and passability

During the project the main characteristics of the investigated fields were recorded. Emphasis was placed on descriptions of the type of land use, field cover and on the vegetation

[4] Smaller fields reveal wider diversity of the surface cover whose rotation is unpredictable.

characteristics and density. Furthermore, passability and factors of surface visibility, which proved to be very closely connected to each other, were marked. The visibility on the surface of each polygon was recorded in a percentage in range of 100-80% (*excellent*), 80-60% (*very good*), 60-40% (*good*), 40-20% (*low*), 20% > (*very low*). The passability/walking conditions were expressed as *excellent*, *medium-hard* and *difficult*. According to two-year observations the surveyed fields were divided into the following classes with more or less consistent properties:

- **Ploughed Fields** contained deep furrows reaching up to 50cm underground. Their surface visibility was excellent and the passability ranged from medium-hard to difficult. In September these fields were very dry and hard. In October to November the soil was softer, sporadically moistened due to occasional rain (Figure 9).
- **Harrowed fields** contained excellent visibility in general. During September hard and dry lumps of clay of variable sizes accumulated on the field surface making the passability medium-hard. In October and November the surfaces of these fields were softer and easier to walk (Figure 10).
- **Furrows** is a field treatment containing freshly piled up parallel lines of earth separated by narrow and regularly irrigated channels approximately 30cm deep. In general, the visibility and passability is excellent, although these good conditions might be negatively influenced by water flooding parts of the fields and making them difficult for investigation or simply inaccessible (Figure 11).
- **"HDS"** is artificially created term which refers to harvested and beaten furrows that are no longer irrigated; instead they are flattened and covered by varying amount of straw as a result of the past agricultural activity - growing of the cereals. HDS stands for Hard, Dry and Straw, pointing out the basic characteristic of the field surface (Figure 12). These specific features were however fitting most particularly for the September seasons. In October and November, although the straw cover did not change, the soil became softer. The visibility on the surface worsened with the passing months after harvest (in some cases probably also years) as weeds were growing on the uncultivated soil. In fact, in some places it was difficult to separate HDS from pasture. In the result the visibility varied between 100% and 20% (20% > was considered as pasture).
- **Pasture** had variable amount of vegetation ranging from sparse to mature. This influenced the visibility covering almost the entire possible spectrum, except the

excellent one (80% > 0). The passability was excellent or medium-hard while waterlogged (Figure 13).

- **Harvested Cotton Fields** were investigated during the 2011 season only when they were partly or entirely harvested. There were either leafless cotton bushes standing in the field or cut shrubs piled up on the ground. In both cases the visibility was usually very good, although excellent or low visibility was also possible. The passability differed depending on the growth stage of the bushes (Figure 14, Figure 15).

The following table illustrates the extent of each land cover within the total amount of fields walked in September 2010 and October/November 2011:

	HDS	**Ploughed**	**Pasture**	**Harrowed**	**Furrows**	**Cotton**
2010	47 %	23 %	20 %	7 %	3 %	0
2011	49 %	6%	3%	9%	9%	24%

There were also other aspects of the surface visibility and passability besides the density of the vegetation cover. For instance, the soil aridity or, by contrast, the soil moisture levels influenced the clarity of sherd determination. Pottery fragments were easier to find on wet grounds as they "disappeared" when coated with dust. For sherd identification late autumn featured slightly better conditions as most fields were waterlogged. The irrigation channels of furrows accumulated many pottery fragments at its final stage. This effect pointed to the secondary displacement of the surface material which was especially apparent in the areas adjacent to *ariks.*

The other outstanding aspect that influenced the visibility in some parts of the investigated areas was salinization. The water of Sherabad Darya, which is used for irrigation of the Oasis, is partly salt. When the water evaporates a thin layer of white salt crust reminds on the surface, obscuring both the soil and any potential artifacts (Figure 16). This effect in the study area was particularly noticeable around Kulug-Shakhtepa.

Enclosures for domestic animals and mobile shelters for the shepherds were another significant impediment to the systematic filed survey. The structures were standing in the middle of fields surrounded by straw, with domestic animals covering the area with a layer of excrements (Figure 17). The enclosures were often accompanied by guard-dogs which very effectively eliminated the passability in their surroundings.

During the field walking the water channels represented main boundaries between the fields, and in some cases were very difficult to cross. Some of the *zebers* do not have a crossing for two kilometres, although in some places it is possible to wade through if the water is low. *Ariks* are easy to climb over or crawl underneath, however for the agricultural machines both types of channels represent impassable frontiers. Cultivation of fields is thus undertaken in delimited area which does not allow the movement of surface materials to great distances. This is an excellent characteristic for the systematic field survey as artefacts in irrigated lowlands predominately accumulate in areas near to their place of origin.

4 Methodology

The project was primarily based on the systematic field survey of selected areas that were chosen during the 2010 season according to their proximity to tepas, their passability and visibility. In the same year, several test pits were carried out in areas with the highest pottery accumulation. During the following season in 2011 total pickups were performed on all of the detected scatters.

During the project satellite imageries were combined with topographical maps and processed with an application based on Geographic Information System (GIS). This technology was used to facilitate the data collecting, visualisation and evaluation. The digital data were dabbled by paper forms to collect maximum information and to prevent their loss.

4.1 Satellite imagery

Three types of satellite imageries were used during the project. Thanks to their diversity and different acquisition time each of them brought unique data and method of utilization.

4.1.1 The Corona imagery

The oldest applied imageries are from Corona, the American espionage tool operating between 1960 and 1972.[5] Images available for the project were taken in November 18th 1970 by the camera KH4-B with the resolution 1.8m, the best ever captured (No. of mission 1112, Figure 7). The imageries are black and white only, with panoramic negative in the size of 7cm by 90cm which causes the best resolution of the negative to be in the centre of the image and creates distortion on the edges (Parcak 2009, 52-58). Nevertheless, the imageries from Corona are easily available and inexpensive. As a result they are used very often for archaeological projects. They have a special importance for areas where the topographical maps are inaccessible or for remote regions such as the Altay Republic (for detailed study and use of the Corona in Northern Siberia see: Gheyle, Trommelmans, Bourgeois, Goossens, Bourgeois, De Wulf and Willems 2004).

The original landscape in Uzbekistan has been greatly modified in the last 40 years. As a result, the Corona imagery was primarily used during the project for comparisons with the more current imageries. This also enabled the project to study the development and changes of the countryside.

[5] For detailed parameters see: http://www.nro.gov/corona/facts.html.

4.1.2 The Ikonos imagery

Ikonos, launched in 1999, was the world's first high-resolution commercial satellite (Figure 18). The resolution of the Ikonos is 0.82m for panchromatic imagery and 3.2m for multispectral imagery - blue, green, red, NIR (near-infrared) (Parcak, 72-73).[6] The coloured bands are possible to combine in special computer programs and can be applied to remote sensing techniques in order to detect underground features or vivid vegetation (Parcak 2009, 59-60).

Regular price for the imagery varies between 8 to 13 US dollars for one sq km. However, the GeoEye Foundation funded our project with 500 sq km of archived georeferenced imageries taken on August 18th 2001. The black and white versions of the imageries with the best resolution were used as a base layer in the GIS computer program. Since these imageries did not cover the whole investigated area, the missing parts were completed by imageries form the Google Earth application.

4.1.3 The Google Earth imagery

The freely available Google Earth application provides the most recent aerial view of the study area. The last captured imageries of Sherabad District dates to the end of 2007. It is also possible to access a visualization of the landscape situation from the beginning of the same year through using the icon, "the historical imagery".

Some parts of the study area missing in the Ikonos were cut out from the Google Earth imageries, georeferenced and integrated into the final map elaborated in the GIS application. When taken out of the original place and used secondarily, the resolution of the imageries got worst. This is noticeable on the pictures displaying the areas north of Pastaktepa and Shishtepa (Figure 51).

The resolution of the Google Earth imageries is, in general, very good. However, the application runs online and requires a permanent connection to the internet. Getting the best results with these imageries would be difficult while using Google Earth in remote places with no, or limited, internet access.

4.2 Topographical maps

The Soviet topographical maps in the scales 1:500000, 1:200000 and 1:100000 were gained from *mapstore.com* before the start of the 2011 season. From those maps only the 1:100000 proved to be detailed enough for the project's purposes (Figure 19). The whole investigated area of Sherabad District was placed on four separated sheets, each covering

[6] For detailed parameters see: http://www.landinfo.com/satprices.htm.

44km by 37km (latitude x longitude). The maps were compiled during the 1970s and 1980s, i.e. under the Soviet period in Uzbekistan.

Topographical maps proved to be a much better tool for orientation in the landscape than the satellite imageries. They are also easily displayable in the mobile PDA. The majority of the main roads and irrigation channels did not change from the current situation, which helped with navigation on roads and fields. The archaeological sites are marked in the maps in a particular way.

The signs for tepas marked in the topographical map had varying shapes; however most of them were drawn in a form of radiating circles (resembling a sun-symbol). Some of the bigger mounds are very clear on the map, revealing approximate dimensions and shape. Others are simple, delineated by a single contour line or marked by a number indicating their height in meters.

4.3 Data collecting

During the field walking data were collected on a PDA Trimble Juno SB equipped with a GPS and running ArcPAD, the mobile application of GIS (Figure 20). Ikonos satellite imagery or topographical maps served as base maps and the integrated GPS showed field walking team it constant position in the terrain. Surveyed areas were drawn into PDA in the shape of polygons and were numbered to facilitate the post-processing. For better orientation and additional back up, tracklog and navigation points were kept by a single GPS Garmin eTrex. Digital spatial records were accompanied by detailed paper forms containing information about each field. Both sources of data were further processed and combined in the project geodatabase daily on returning to the archaeological base.

The paper forms recorded the agricultural and walking conditions, the visibility and the passability of fields, waterlogging or dryness of the soil, and the slope of the investigated fields. The main information however comprised the count of artefacts (pottery and architectural ceramics fragments). Further the amount of stones accumulating on the surface was marked by following numbering system: 1 = none, 2 = presence of the stones, 3 = an increased amount of the stones. The size was than noted only as pebbles – rounded stones in size between one by one to seven by seven centimetres, and cobblestones in size up to 15 by 15 centimetres, as we did not marked bigger examples.

4.4 The systematic field survey

The systematic field survey was applied in areas in the immediate vicinity of the investigated tepas. Averaged amount of material located on the fields was determined,

visualized in the GIS application and evaluated in accordance to its growing and falling tendencies in separated polygons which created a basic unit of the research.

The methodology of the project was based on the multidisciplinary Tundzha Regional Archaeological Project (TRAP) performing field research in Bulgaria twice a year since 2009 (Ross, Sobotková, Connor and Iliev 2010; Ross and Sobotková 2010; Sobotková, Ross, Nehrizov and Weissová 2010; Sobotková 2009).[7] As a stable member of the research team in Bulgaria I am aware of the working techniques and methodology of documentation. Therefore the project in Sherabad District was inspired by the TRAP procedures but the approaches were modified to suit the different environmental conditions and cultural-historical development of Central Asia.

In contrast to the TRAP, only intensive field survey strategy with extended visibility was utilized. 100-50% visibility used by the TRAP for the intensive survey was by our team extended to 100-40% visibility. This approach enabled to cover intensively more extensive area. Furthermore, the spacing between field walkers was decided at permanent 15m instead of the original TRAP range which was between 10m and 20m (Sobotková, Ross, Nehrizov and Weissová 2010, 58-61).

The aim of the field survey was not to attempt to detect all of the pottery in the surveyed field. As it was already stated by Alcock, Cherry and Davis, intensive field survey is based on quantified observations and controlled artefact collection in the defined area (1994, 137).

The investigated fields in Sherabad District were walked in transects with participants spaced side by side at 15m intervals. Artefact densities were also called out by walkers at 15m intervals as they progressed. This formed record "cells" of 15m by 15m. After five rows were walked the polygon was closed and drawn in the portable electronic device. The dimensions of one polygon approximated a rectangle of 60m by 75m (covering about 0.45ha), i.e. four walkers by five rows (Figure 21, 22). The polygons were prolonged by up to two more rows or shortened and narrowed when necessary and depending on the fields' dimensions, passability or anomalies revealed during field walking.

The project aimed to obtain a representative field sample without any ambition to cover the entire Sherabad District. As a result effort was given to proceed in intensive survey rather than aiming to cover an overwhelmingly extensive area. The spacing between participants defines the size of the smallest detectible scatter/site (Plog, Plog and Wait 1978,

[7] The official webpage of the project with more detailed information and personnel is to be find at: http://www.citiesindust.org/.

383-421). In this sense the approaches were chosen in accordance with the desire to examine smaller areas in detail rather than focus on covering an extensive region.

The approximate area seen by each participant was around a two meters wide corridor - one meter to each side of their walking line (e.g. Bevan and Conolly 2012; Sobotková, Ross, Nehrizov and Weissová 2010, 58).[8] As a result the final number given in the following text represents only the amount of the surface material counted in 600 sq m out of 4500sq m of one regular polygon, i.e. about 13% of all of the estimate artefacts prevalence in one polygon, scatter or site.

Information about the amount of pottery fragments, architectural features or other material detected on the field (glass, bones or stones) were written into the paper form connected with each polygon. If possible, modern pottery was distinguished from ancient pottery to study patterns of modern debris deposition. Diagnostic fragments, including bases, rims, handles and decorated pieces, were marked with the number of the polygon and collected for further investigation. The other fragments detected on the field were counted for comparative purposes and left in place.

4.5 The test pits

Test pits were created only during the first year to accompany field survey results. The test pits were placed on three out of four detected scatters (ShFS01, ShFS02 and ShFS03). The last scatter (ShFS04) was omitted due to lack of time and its remoteness.

The test pits' dimensions were established at 100cm by 80cm with the initial intention to have them reach a uniform depth of one meter (Figure 23).[9] The spits were approximately 20cm thick. However, in several cases the excavation work was stopped either due to groundwater appearing approximately 0.8m underground or by the presence of a mud-brick wall covered by the topsoil. In such cases the test pits were not fully excavated to the desired depth. By contrast, two test pits at scatter ShFS02 were excavated to a depth of approximately two meters. This was due to the softness of the soil which enabled easy digging. The advantage of the favourable conditions was utilized to dug up to the maximum possible depth in order to reach bedrock or sterile soil. However, neither one of them was reached in any of the test pits.

[8] Bintliff and Snodgrass (1988) consider a range of 2.5m on either side of each field-walker, thus creating five meter wide corridors. As a result of my previous field survey experiences the number seems to be exaggerated. Therefore the two meter definition mentioned in other scientific works was preferred. Consequently participants were instructed to count one meter to both side of themselves to gain a uniform avarage number from each of them.

[9] As described further in the text the first test pits placed on SHFS03 had smaller dimensions (50 by 80cm), which proved to be insufficient. Consequently they were enlarged for the following application.

Pottery fragments gained from the test pits were divided according to the spits and counted for further analysis. Diagnostic fragments were retained and evaluated for comparisons with the collected surface material and also in order to trace remains of stratigraphy. However, the main aim of the test pits was to verify the field survey results – to reveal a continuity of the material to some depth whilst also excluding the secondary displacement of the surface material. The final evaluation of the scatter chronology was then based on a combination of data gained from the surface survey and also from the test pits.

4.6 The total pickups

The TRAP again inspired the project's total pickup methodology by a way of re-sampling the investigated scatters (Sobotková, Ross, Nehrizov and Weissová 2010, 61). On each surveyed area featuring a large amount of surface material a total pickup was placed on several different places. A square of 10m by 10m was marked in the selected area and all the material concentrated within was collected. The artefacts gathered in the square were then divided into individual groups based on their main characteristics (Figure 24) (**see 5.2.** "The surface material division"). The artefact groups were processed in the field: weighed, counted and photographed. The non-diagnostic fragments were left on the field whilst the diagnostic ones were retained for further study.

The method of total pickups provided the project with a representative and quantified sample of the material present on the fields, including classes of tiny artefacts which might be easily omitted during the field survey. The total pickups enable evaluations of the variability of surface artefacts within one investigated scatter and comparison among the other areas of interest. Different chronological or typological components can also be identified, changing the general idea of a scatter after the evaluation of systematic field survey.

5 The chronology and types of the investigated pottery

Pottery represents the essential chronological element of the discussed scatters. To clarify the periods and centuries referred in the text, the following summarization introduces the time-line and short historical background of material encountered on the fields. Principal morphological forms and typical decoration which created basis for the pottery classification and determination are shortly described.

5.1 The applied chronology

5.1.1 The Iron Age

Although the lowlands of Surkhan Darya Province have been inhabited since the Bronze Age Period (Abdullaev 2011, 15) the earliest surface material detected during the field survey belonged to the Early Iron Age. Our ensemble of this period was identified by Sh. Shaydullaev and determined according to his publication "Severnaya Baktriya v epokhu rannego zheleznogo veka" (2000, 79-116) which follows the chronology of Askarov and Al'baum (1979, 67). The epochs' divisions are based on the stratigraphy of the Iron Age archaeological site Kuchuktepa, investigated in the 1960s and 1970s (Askarov and Al'baum 1979). Accordingly the period is divided into several phases and sub-phases called "Kuchuk" marked by Roman numerals I (A, B), II, III and IV.

In the ensemble material from Kuchuk III (the end of the 7^{th} to the 6^{th} century BC) and Kuchuk IV (the end of the 6^{th} to the 5^{th} century BC) was recognized. Uzbekistan in the latter period passed under the dominance of the Achaemenid Empire which controlled Central Asia from the 6^{th} to the 4^{th} century AD - up to the beginning of the Hellenistic Age (approximately 540 BC to 330 BC) (Lyonnet 1997, 83-119).

Pottery of the Kuchuk III and the Kuchuk IV periods detected in field survey ensembles contain very similar characteristic. This pottery is well levigated, made using a wheel with sherds of either light white/yellow/beige color or of an orange/red tint. The surface slip usually reflects the paste color of the sherd. The basic morphological type was a high cylindrical vessel with a thickened rim and characteristic break in the lower part of the body (for whole vessels see: Shaydullaev 1979, e.g.: p. 68/fig.47/1 or p. 93/fig.63/4).

5.1.2 The Hellenistic period and the Greco-Bactrian Empire

The victory of Alexander the Great in the battle of Gaugamela in 331 BC ended the Iron Age in Central Asia and started a new epoch which brought, in contrast to the Achaemenid period, many permanent changes to the local material culture. Huge amounts of

new pottery types, e.g. fish plates, bowls, craters, simple jars and pilgrim flasks, started to appear in the region of Bactria and remained there for a long period of time (Lyonnet 1997, 121-155). The pottery ensemble for this epoch contains specific characteristics. First group includes a thin, bright pink or light-yellow sherd with slip in a lighter shade of the same color. Such examples are also well known from Ai-Khanum and Dalverzin Tepa. Other production features distinct red or light yellow sherd with red slip (Pugachenkova 1979, 86-87).

Under the rule of Seleucids, the successors of Alexander, Central Asia was settled by Greek inhabitants who caused a wide dispersion of western pottery beginning the replacement of local production (Lyonnet 1997, 149). In 250 BC, the Greco-Bactrian kingdom was separated by the Bactrian satrap Diodotus from the Seleucid Empire and lasted until some time between 140-130 BC when it was brought to its downfall by nomadic tribes (Koshelenko and Pilipko 1996, 132). In the following period the Hellenization of Central Asia continued and influenced not only pottery production but also the local political and social structure, architecture and art (Lyonnet 1997, 149).

5.1.3 The Kushan Empire

The following period is associated with the campaigns of nomadic tribes, namely the Yuezhi who came from western Kansu and caused the fall of Greco-Bactrian Empire. The Yuezhi tribe were in turn defeated in 170 BC on their own territory by the Hsiung-nu tribe (Huns) and forced to leave the area of the eastern side of Pamir Mountain (Lyonnet 1997, 158). During the tribes' movements the pottery production diminished. Although new nomadic types appeared, Greek pottery continued to be produced in a greater amount. Even in the necropolises of nomadic tribes Greco-Bactrian pottery is found, the most favourable shapes include jars similar to lagynos or pilgrims flasks (Lyonnet 1997, 159).

One of the five Yuezhi tribes, Kushan, settled in the area of Bactria during the 2nd and the 1st centuries BC and created one of the largest empires in ancient Central Asia (Pugachenkova, 1979, 7). The empire was formed under Kujula Kadphises in the 1st century AD, and lasted approximately until the mid of the 3rd century AD when the area of ancient Bactria was conquered by the Sassanid Empire (Lyonnet 1997, 173).

The period of Kushan domination was exceptionally spectacular, peaceful and successful. They continued the Greek tradition, using Greek writing, architectural elements and pottery types (Lyonnet 1997, 150). The usage of craters, table ware, red and black slip, imprinted and engraved decorations continued in the Greek style, whilst some specific features changed. For example, under the Kushan period vessels became larger, deeper and clumsier (Lyonnet 1997, 173). Pottery sherds were a red colour during the earlier period and,

towards the end, developed a rather light ochre or yellowish tint. In the case of open type pottery, the slip covering both sides of the dish was also of an ochre or red colour. In some regions of Bactria a Grey Ware was detected, being silver sherds during the early period and becoming darker in the later period, however in both cases this type of pottery was covered by an almost black slip. Towards the end of the Kushan period the Grey Ware disappeared and production of red-slipped ware slowly declined (Pugachenkova 1970, 87).

5.1.4 The Kushan-Sassanid period

The period following the decline of the Kushan Empire is connected with the domination of Sassanids, the Persian ruling dynasty which rose to power in AD 224 (Harmatta 1994, 492) and spread over Southern, Western and Central Asia. The Kushan-Sassanid period includes the second half of the 3rd century and the 4th century AD, an era connected with political changes and tribal movements. The social structures are also reflected in pottery production which mixes western types with new nomadic morphological forms made of different clay. The previous pottery with the red slip continued to be produced, although the tint tended to brawn-black colour (Lyonnet 1997, 173-174).

5.1.5 The Early Middle Ages

In the first quarter of the 5th century AD the Hephthalites, a nomadic tribe, conquered the Surkhan Darya Valley. From this period onward the Early Middle Ages in the Tokharistan can be dated ending in the 8th century AD (Pugachenkova, Rtveladze, Kato 1991, 44). The period of the Early Middle Ages was gradually represented by two major peoples. First by the tribe of Hephtalites, which was sovereign until the final decade of the 6th century AD, and later by the Turkic tribes who, in the first quarter of the 7th century AD, gained the supremacy of the Tokharistan and created several small kingdoms (Rubakova 1999, 133). The local material culture continued until the advent of Islam in the mid-7th century AD which brought fundamental cultural and social changes. Some of these changes are reflected in the pottery production, e.g. the occurrence of the Glazed Ware (Lyonnet 1997, 253).

In the beginning of the 8th century AD the Surkhan Darya Valley was attacked by Kuteyba bin Muslim and the previous rich ancient cultural tradition appeared in the sphere of a new religion and culture (Pugachenkova, Rtveladze and Kato 1991, 45). During the following 9th and 10th centuries AD, Islam became rooted in Central Asia (Pugachenkova and Rtveladze 1990, 182), bringing new types of the pottery production. Nevertheless, local culture persisted until the 10th and 11th centuries AD in architectural and sculptural traditions (Lyonnet 1997, 271).

5.1.6 The High Middle Ages

According to the literary sources several kingdoms with abundant settlements had been created in the area of Tokharistan between the 9th and 12th centuries AD. The north-eastern part of Surkhan Darya Valley was occupied by Chaganian (Saganian) which reigned independently under the Samanids, a dynastic empire spreading thought Central Asia for 180 years (Pugachenkova and Rtvaladze 1990, 165).

The Samanid state was created during the last quarter of the 9th century AD and lasted until the beginning of the 11th century AD when several different peoples begun fighting over the area. These people included the tribes of Ghaznavids, Qarakhanids, Seljuks or Karluks (Pugachenkova, Rtveladze and Kato 1991, 45-46). The final period of the High Middle Ages then becomes connected with the Mongols who invaded Central Asia in AD 1220 (Gadrin 1957, 96).

Pottery of the 10th to 13th centuries AD is distinguished in the following text as the High Middle Ages production. The pottery ensemble of this period is compounded of unglazed white-coloured vessels with incised decorations, or appliqué created in the *barbotine* style or made with a mould. Furthermore, glazed vessels with polychrome painting on the engobe are also a feature of the period. Both ensembles are inspired by the pottery of eastern Caliphate produced during the 10th and 11th centuries AD during the Samanids and Ghaznavid periods (Gardin 1957, 96).

5.1.7 The Timurides

At the turn of the 14th and 15th centuries AD the southern province of Uzbekistan became part of the state controlled by Timur and then controlled by his successors, the Timurides (Pugachenkova, Rtveladze and Kato 1991, 46). The pottery produced at this time is covered by blue or white glaze and decorated with natural motives. Occasionally, unglazed vessels with impressed decoration are also found. The chronology of the Timurides pottery is well known from ancient town of Bactra,[10] where the prevalence of this material terminates in the beginning of the 16th century AD (Gardin 1957, 97).

5.1.8 From the Uzbek State up to present

In the beginning of the 16th century AD was the area under discussion seized by Sheibani-Khan, the founder of the Uzbek state in the Central Asia. The state lasted under the Sheibanides and Janid (Astrakhanid) dynasty to the mid of the 18th century AD. In the following period was the Surkhan Darya province under supremacy of the Bukhara Empire.

[10] Modern Balkh situated in Northern Afghanistan. It used to be ancient capital of Bactria, later of Tokharistan.

The domination lasted until the 1860s, when the occupation of Tsarist Russia started (Pugachenkova, Rtveladze and Kato 1991, 46-47).

The pottery relating to the 16th century AD further to the modern days will be in the thesis always specified by particular centuries. Fragments belonging to those periods were recognized and dated by a collaborator of the Czech team, Tokhtash Annaev, respected authority at the issue in Surkhan Darya Province. Unlike the other presented material, no convenient literature relating to the discussed material is available for comparison.

5.2 The surface material division

5.2.1 Characterization of the material

The surface material detected by the total pickups was divided into several groups based on its characteristics. These groups were material-based classifications, not chronological divisions as the fragments were mostly non-diagnostic, i.e. not suitable for this approach. The main aspects of the characteristic classifications considered material, main function and appearance of artifacts.

Firstly, different materials were separated within the scatter ensemble. Pottery, various types of architectural ceramics, glass, metal, bones and wasters were grouped together. Rarely detected small finds sometimes represented a unique group as a single piece, for example special objects such as a terra-cotta bead or part of a stone pestle were found.

The pottery was further divided according to its function and appearance.[11] The subgroups are: Kitchen Ware (KW), Grey Ware (GW), Fine Ware (FW) and Common Ware (CW).[12] The maximum thickness for FW sherds was decided as 0.5mm which created an appropriate division between FW and CW classifications as the clay of FW and CW sherds featured very similar characteristics otherwise. The CW was further divided into Red Ware (RW) and Yellow Ware (YW), reflecting the standard color of the clay.

The KW was the only group with occasional handmade fragments. The color of KW shered varied between ochre, brown and black. Deferent forms of pots, generally burned from outside, were highly represented. The pottery was slipped in the same color as the clay. Additionally, the outside surface was smoothed, probably to cover the additives. This clay contained diverse amounts of inclusions reaching up to 20%.

[11] The material classifications were inspired by division used by the Czech-Uzbek team whilst excavating Jandavlattepa.

[12] As during the field survey was not used a division for Coarse Ware, the abbreviation CW stands for Common Ware. The only coarse material detected were some fragments of Kitchen Ware and a few pieces of storage vessels which are sorted into the Red Ware or Yellow Ware categories.

The GW fragments were represented in several pieces connected only with scatter ShFS03. These sherds were all, except one fragment, dated to the end of the 4th century BC. The fragments were covered from both sides by a thin layer of slip in the same color of the clay. The paste of the sherds was very well lavigated, with a maximum of 5% of inclusions. The one reminding GW sherd belongs to Timurides period and it will be disrobed in connection to ShFS03.

The FW category included different types of table ware – bowls, plates and small jugs. The character and color of the sherds and clay varied but in all cases was very well levigated with a small amount of tiny inclusions. This group, most of all, reflected the chronology of fragments when surface slip, glaze and decoration are considered.

The CW includes bigger jars, stands and storage vessels. The clay may be both fine and coarse with 5% to 20% inclusions. Red and yellow colors for the sherd fabric completely dominate, however no relation between specific morphological types and coloring was detected.

The Architectural Ceramic (AC) was placed into a single group with the intension to divide the collected material into sub-groups of bricks and daubs if possible. There were no roof-tile fragments on the fields which reflected the practice of roof constructed from organic materials, a combination of wooden trusses, clay and straw which is still used nowadays.

The collected material was processed at the archaeological base – drawn, photographed and analysed for fabric type, manufacture, proportions, etc. Preliminarily classification and identification of the pottery was conducted by T. Annaev and Sh. Shaydullaev who kindly assessed the fragments and helped with their dating.

Due to the late date of the field survey in 2011 and almost daily rain, not only the investigated fields, but also the collected pottery and architectural ceramics were all soaked and muddy. In order to obtain the real weight of the collected material, one kilogram of variable pottery types and of AC fragments was gathered, washed, dried, and again weighted. After eight days the weight establishes on 816g. Because the conditions of the total pickups were very similar for all of the scatters, the final pottery weight of every detected category was in the end reduced by 0,186 grams on each gram (glass and waster were not included).

5.2.2 The size of the fragments

To determine the approximate fragmentation of pottery and AC material, a basic definition relating to the sherd dimensions was applied:

- coin size (a regular-size coin such as quarter dollar or euro 50cent)

- half palm size
- palm size
- hand size (the palm with fingers)[13]

The different dimensions used in the text derive from those four basic ones or represents their variants. For example descriptions such as “smaller than a coin size” and “dimension between palm and hand size” were used in descriptions. The indicated dimensions are based on the covered surface, not on the shape resemblance.

[13] A female hand is considered as basic criteria.

6 The result of the field survey

6.1 Introductory word

The systematic filed prospection was undertaken only in the cultivated areas including both banks of the Sherabad Darya as far as 18km from the centre of the town of Sherabad. During the seven weeks investigation conducted over the two seasons of the duration of the project, 1567 polygons were set up, covering approximately 731ha (Figure 25). Out of them 245 polygons with the overall surface of 114 hectares are connected to the scatters subsequently described in the thesis. On average, about 16% of all of the surveyed areas revealed enough surface material to be classified as an artificially created cluster connected with the previous human activity. The clusters are predominantly represented by scatters marked as ShFS01, ShFS02, ShFS03 and ShFS04,[14] partly also by the material accumulations ascertained in several areas in immediate vicinity of Jandavlattepa, particularly with clusters numbered as 150, 154, 155 and 155.

The chronology of the surface material is based on determined diagnostic fragments which make up about 62% of all of the collected and documented pottery. The remaining amount was insufficiently significant to provide any further data.

If not stated otherwise, the tepas mentioned in connection to the investigated scatters were examined by the Czech-Uzbek team in past three years. The director and supervisor of the field work Ladislav Stančo kindly provided me with the unpublished database including the chronology of the settlement mound habitation estimated on the grounds of the collected pottery.

The drawn pottery fragments shown in "Tables" represent only a part of the processed material. They are the most diagnostic, the most characteristic, or otherwise significant to be used as typical samples of individual types or periods.

6.2 The scatter and the site

6.2.1 The definition of the scatter and of the site

For better understanding of what follows it is now necessary to clarify the terms "scatter" (or cluster) and "site". The term "scatter" is used for the material accumulated in the vicinity of elevated tepas. The term "site" basically stands for the tepa itself. It might be

[14] Abbreviation "ShFS" stands for Sherabad Field Survey. The subsequent number reflects the order in which the scatters were found.

applied to the elevated mounds recorded by the field survey as well as to those newly detected in topographical maps or in satellite imagery (as in the area of Jandavlattepa).

6.2.2 The character of the scatter and of the site

The investigated fields in general revealed small amount of the surface material which has been predominantly connected with the immediate vicinity of the tepa. The accumulations may be divided into two groups.

The first one is connected with light pottery scatters concentrated in the immediate vicinity of several tepas (namely around Taushkantepa, Gilyambobtepa and of the southern part of Khosyattepa). The pottery dispersion reaches up to maximal distance of 350m from the tepa and reveals the same pottery types and thus identical chronology with the closest ancient settlement. Due to the small amount of pottery fragments and architectural ceramics whose quantity sharply decreases with growing distance from the tepa it seems that these scatters only result from the tepa fallouts. The distribution of the material over the closest fields is most likely caused by agricultural activity, but also various human or natural factors might be involved.

The second group is created by several outstanding surface accumulations of pottery and architecture ceramics. In our investigated sample, the high amount of surface material sprawled up to 800m from the center of the closest tepa (measured on ShFS03 - Shishtepa). The amount of the material concentrated around the tepas was usually constant for several tens of meters and dwindled gradually after few polygons. Generally it is possible to determine the core and the margin of the cluster; also the borders of the scatter are clear, very well differentiable from the surrounding fields.

Assuming, that the scatter represents a continuation or a part of the closest site, it is almost impossible to distinguish the original dimension of the site out of the dispersion of the surface material. The scatter dimensions and number of the discovered material discussed in the following text considers the core and the marginal areas altogether without attempting to define the original extant of the site/of the tepa. In several places, the underground continuity of the surface material was attempted to be determined by means of the test pits which without exception confirmed the pottery presence down to the deepest excavated spits.

Different approaches were embraced in the area of Jandavlattepa where the presumable archaeological sites were detected on the basis of the topographical map and verified by the ground control. Since these sites were sought for in specific area, even a small amount of the surface material found in vicinity of the feature was considered as a site. The

lowest number connected with a scatter was that of 45 fragments collected in an area of approximately 200 sq m.

6.3 The areas of the filed survey

6.3.1 Season 2010

Before the beginning of the investigation, several areas suitable for the prospection had been chosen in advance from the satellite imageries. The main criteria of the selection were the extensiveness of the area, the low habitation rate and at the same time a higher amount of tepas (more than one). During the first days of the terrain work the chosen areas were visited and evaluated according to their surface cover and passability which set aside only few of them as suitable for the further research.

The first investigated fields were located next to the village of Hurjak, about 6.5km south from Sherabad in surroundings of Kulug-Shakhtepa (area of the scatter ShFS01). The other surveyed areas started about 5.5km to the east from the Sherabad, right to the south of the village of Gorin, and continued for other four kilometers to the east covering vicinity of archeological sites of Gorintepa, Gilyambobtepa and Shishtepa (ShFS02, ShFS03). Later the area was extended to the south into the immediate vicinity of Ayritepa, about two kilometers away from Shishtepa (ShFS04; Figure 25).

Two additional short-term surveys were undertaken in the Sherabad district. The first one was covering several fields in the area of Jandavlattepa located about ten kilometers south-east from Sherabad. The other one started about 13km also in the south-eastern direction from the town and comprised the surrounding of Boshtepa, Koshtepa I and Koshtepa II. In both cases it was found out upon arrival that only a small portion of the selected fields was suitable for the survey, which was then limited to only a one-day prospection.

The site of Jandavlattepa was partially investigated. However, the whole investigation will be discussed in detail in a separated chapter together with the 2011 season (**see 6.8. "**The area around Jandavlattepa").

The immediate area of Boshtepa, Koshtepa I and Koshtepa II was overgrown with dense cotton fields which did not allow us to approach the site of Khoshtepa I at more than 100m. The surveyed area therefore stretched along the left bank of Sherabad Darya where 94 polygons covering about 41ha were set up (Figure 26). In total, ten ancient and two modern pottery fragments plus two fragments of architectural ceramics were detected on the surface, but only few of them were dated. Two of the determined pottery fragments covers the High Middle Age period, other one the period from the 17th to the 18th centuries AD, and the last,

more recent sherd, belongs to the 19th century AD. In conclusion none of these fragments is contemporary with Koshtepa I or Koshtepa II, which were both settled in much earlier periods ending by the 7th century AD. Only Boshtepa, among the other periods, was settled also from the 18th to the 20th centuries AD. The detected fragments are however located 700m, 1500m and 1700m far from the settlement mound which may mean either that they are connected with the tepa or that they have a totally different origin which cannot be closely defined.

6.3.2 Season 2011

The second season of the project primarily focused on the task to determine the remaining limits of the four main scatters detected during the previous year. This task was successfully completed. Further, the accuracy of the newly obtained topographical maps was tested in two particularly interesting areas. The first of these was the surrounding of Jandavlattepa where six new features, no longer visible in the landscape, were detected. The other area was placed about 18km to the south-west from Sherabad and 2.5km to the west from Talashkantepa II, the closest well-known archaeological site. About 21 new sites in total were marked in an area covering a stripe of eight by four kilometers. In one-day prospection two of the features located about 370m from each other were surveyed. The area of Boshtepa, Koshtepa I and Koshtepa II was no longer investigated

6.4 Scatter ShFS01

6.4.1 Location

The first pottery scatter is located 6.5km to the south off the town of Sherabad in the immediate vicinity of the village of Hurjak. The main site of the area called Kulugh-Shakhtepa covers about 5.5ha; several other smaller tepas are located up to one kilometre from the centre of the main tepa. In a distance of 550m to the north-east is placed Tigrmantepa, 760m to the east is Khosyattepa and 315m on the south-west is situated another tepa whose name remains unknown (catalogue No 73 "No name tepa", Danielisová, Stančo and Shaydullaev 2010, 85; Figure 27)

The area directly adjacent to the Kulugh-Shakhtepa from the north-west is occupied by a recent cemetery which covers seven hectares. The rest of the northern and north-eastern part is than occupied by the Hurjak village which is slowly growing southwards as it is readily visible on the comparison of the Figure 27 capturing the Ikonos imagery from the year 2001 and Figure 28 depicting the Google Earth imagery from the year 2007. The green colour on the Figure 28 shows areas newly inhabited over the past seven years.

6.4.2 A general description

The extent of the area connected with the site is approximately delimited by 86 polygons covering 37ha, which produced altogether 5000 fragments of ancient pottery, 110 modern sherds and 575 fragments of architectural ceramics. In average 154 various fragments were discovered in one hectare. The highest amount of the pottery finds was concentrated further south and east from the tepa as far as 580m away.

In connection with this site the highest amount of ancient pottery fragments detected in one single polygon was recorded, the number reaches up to 472 pieces. Furthermore, high amount of modern pottery was detected in marginal areas of the field. Outstanding concentration of the modern pottery is connected to polygons directly situated along the village of Hurjak, where occasionally an entire half or a quarter of a vessel was noted. The surprisingly low pottery fragmentation is due to a quite recent dispersion of the material, still accumulated around the place where it was wasted. The most often recognizable types are dishes with characteristic cotton-boll pattern and white painted porcelain which are both still in use (Figure 29).

Stones of pebble-size were detected only east of the tepa in an area constituting a north-south stripe about 80m wide, and 450m long (Figure 30). The ancient architectural ceramics were mainly represented by bricks, belonging according to their measurement (26 by 26 by 8cm) to the High Middle Ages. The biggest concentration was detected in the immediate vicinity of the tepa, with the biggest portion concentrated on the north, reaching up to 430m from the center of the tepa. Smaller amount of architectural ceramics was spread all over the eastern field, with variable amount in individual polygons. Another minor isolated group of the architectural ceramics was identified about 300m south off the tepa. The total dimensions of the scatter measured 300m in the north-south and 200m in the east-west direction (Figure 31).

6.4.2.1 Season 2010

During the project's first year a pottery scatter was discovered concentrated about 300m to the north-east and east of the Kulugh-Shakhtepa (Figure 32). The area surrounding the tepa was covered by dense cotton fields, which did not allow surface survey in its immediate vicinity. About 12ha were assigned to the site with apparent continuity under the surrounded houses and gardens.

Local inhabitants testified several random finds in their proprieties. The first one was located about 150m to the east from Tigrmantepa and accidentally unearthed during the excavation of an *arik*. It consisted of one vessel with the neck broken off in approximate high

50cm and of terra-cotta whistle (Figure 33 and Figure 34). According to the characteristic decoration of parallel wavy lines of the vessel we may date the finds into the High Middle Ages. The other notification of a single pottery find came from a spot more than 500m to the west from the first one, but no finds were available for consultation (Figure 27).

The investigated area all covered by HDS field treatment revealed overall 531 ancient pottery fragments, 86 modern ones, and further 86 pieces of architectural ceramics. Overall it was possible to consider 38 polygons as a part of the concentration covering about 12ha with the average number of 59 fragments in one polygon. The scatter revealed the smallest amount of all of the other investigated clusters which were detected during the first season; it was nevertheless interpreted as an individual site with continuity under the surrounded houses.

6.4.2.2 Season 2011

During the second year of the field survey the area adjacent to the tepa was harvested and covered by HDS field treatment. Remaining unsurveyed fields located directly to the south of Kulugh-Shakhtepa could also be examined; their surface was overgrown by seedlings with excellent and very good visibility. Additional 25ha was investigated, disclosing the highest pottery concentration. In total 4493 ancient pottery fragments, two modern ones and 486 pieces of architectural ceramics were uncovered in 48 polygons in mean of 199 various fragments per hectare.

These results distinctively changed the general view of the pottery dispersion. The amount of the finds concentrated around Kulugh-Shakhtepa revealed the continuity of the surface material into the distance of the previously detected scatter. It turned out that during the 2010 season had been discovered the margin of the eastern part of the scatter and afterwards (year 2011) the core of the concentration, which accumulated around the tepa. The area further to the south yielded an increased number of surface materials as well; especially the architectural ceramics fragments were represented in a high number.

Also this year the local inhabitants were very helpful in the cognition of the site. A little girl living in a house in the recently urbanized area half way between Kulugh-Shakhtepa and the scatter discovered during the first year, brought us a small entire vessel with the neck broken off with rest of a red slip resembling the Kushan pottery (Figure 35). She also gave us several fragments of big vessels decorated in a way characteristic of High Middle Ages pottery (Figure 36).

6.4.3 The test pits

During the first year two test pits were placed in the area located east of Kulug-Shakhtepa, in the polygons with the highest concentration of the surface material. The first pit was placed in the polygon 10135; the other one in the polygon 10120 (Figure 37). The test pits (l.: 100 × w: 80 × d: 100cm) were excavated in spits approximately 20cm deep. Both pits featured the same characteristics. There were no visible stratigraphic layers, only the soil of the upper approximately 40cm had grey-brown color while the deeper part was more dark-brown and soft. The transition was hard to determine and it varied on each inner side of the pit. The profiles showed pottery, stones and charcoal in an unchanged proportion all the way through, however the freshly uncovered soil more noticeably. In this case I would assume that those differences were due to the dryness of the newly uncovered soil and mean nothing more than different moisture.

6.4.3.1 The polygon and the test pit 10135

The surface material of the polygon 10135 contained 72 ancient pottery fragments, four modern ones, and other four architectural ceramics. In the test pit altogether 147 diverse fragments were recognized, from that 138 pottery pieces, eight architectural ceramics and three bone fragments.

The material obtained is summarised in the following chart. Three upper grey rows represent the top soil (spit 1, 2 and 3), the lower white ones (spit 4 and 5) cover the resting 60 to 100cm underground.[15]

In the depth of about 50cm (spit 3) an intact High Middle Ages brick was uncovered (Figure 38) as well as a fragment of a rim with characteristic turquoise glaze classed into the same period. A large fragment of a brick was also detected in the depth of 60/70cm (spit 3-4) stucked in the western profile (Figure 39). In the depth of 90/100cm (spit 5), partly preserved vessel was found dated into the Early Middle Ages. Since the vessel had been broken in antiquity and the pieces remained together in one spot, it seems as it has been preserved in the place where it was originally left (Table 1/1)

Test Pit			Polygon	10135
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface		2		2
Spit 1	4	59	2	65

[15] According to the observation of the ploughed fields the top soil reaches from 50cm to maximal 60cm underground.

Spit 2	2	18		20
Spit 3	1	26	1	28
Spit 4	1	9		10
Spit 5		26		26
Total	8	138	3	**147**

Polygon	**AC**	**Pottery**	**Other**	**Total**
10135	4	72	4	**80**

6.4.3.2 The polygon and the test pit 10120

In the polygon 10120 73 ancient and 19 modern pottery fragments were discovered as well as ten sherds of architectural ceramics. Much more material was detected on the other hand in the test pit: overall 435 pottery fragments, 19 architectural ceramics and 16 bones. In the spit 2 a high amount of terra-cotta pieces smaller than a coin size appeared. From the overall 171 small fragments more than 130 were not bigger than one cm. In the lowest spit five fragments of very soft stone (sand stone?) of approximately a palm size were detected. These finds have no analogy among the other examined material.

The pottery of the High Middle Age is represented in each of the spits down to the lowest excavated layer. The rest of the material is not diagnostic enough, but increased amount of architectural ceramic, especially daub, should be emphasized. Rather than a decrease in number of finds under the top soil there is – on the contrary – more material included in the two lowermost layers (spit 1 + 2 + 3 = 263/3 = 88 fragments; spit 4 + 5 = 207/2 =104 fragments).

Test Pit			Polygon	10120
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface		2		2
Spit 1	3	22	1	26
Spit 2	4	171	6	181
Spit 3	2	54		56
Spit 4	9	150	6	165
Spit 5	1	38	3	42
Total	19	435	16	**470**

Polygon	AC	Pottery	Other	Total
10120	10	73	19	**102**

6.4.4 The total pickup sampling

Three total pickups were undertaken in the area of the site ShFS01. Two of them were performed in the same polygons where the test pits had been placed the year before, i.e in the polygons with the highest pottery concentration – 10120 (TPU 02) and 10135 (TPU 03). One additional total pickup was conducted in the newly surveyed area, 140m west from the centre of Kulugh-Shakhtepa, in polygon 11149 (TPU 04).

6.4.4.1 TPU 02

The first pickup was carried out in the polygon 10120 on a recently harvested cotton field. The surface visibility was excellent with no vegetation cover.

The FW was represented in the highest amount, comprising fragments from the coin to the half palm size. Four pieces, mainly body fragments, were glazed with the characteristic High Middle Ages decoration (green and white engobe with incised parallel lines incrusted by black color, Table 1/2). Several other tiny body-fragments of the FW had a red slip, indicating also the human presence in earlier periods (from the Greco-Bactrian period up to Kushan-Sassanid period).

Among the RW and the YW no diagnostic fragments were recognized. The AC was combination of coin size and half palm size fragments including daub and bricks.

TPU 02	**Fine Ware**	**Yellow Ware**	**Red Ware**	**Architectural Ceramic**	**Total amount**
Count	73	37	51	17	**175**
Weight (g)	229	265	223	591	**1308**
AvgWeight(g)	3.14	7.16	4.37	34.76	**7.47**

6.4.4.2 TPU 03

The second pickup on the scatter was performed in the polygon 10135, in the field with the same surface and visibility characteristics as the previous one of TPU 02. The detected finds however covered a wider spectrum of material types including (besides those present in TPU 02) also KW and one base of non-contemporary green glass. The fragmentation of all represented classes decreased, with YW and RW reflecting very similar average size. Among the YW one decorated stand from the High Middle Ages was found

(Table 1/3). The FW was represented by the biggest amount, containing seven glazed fragments, about five with red slip (Table 1/4) and two body fragments with a textile pattern (Table 1/5,6). The latter decoration is characteristic for 15th century AD and more recent periods (Gardin 1957, 47). The AC was composed of four palm size and six coin size fragments, with the rest varying between those two dimensions. Detection of the KW was very important. Although only body fragments were detected, those were the first examples of cooking pots found during the systematic field survey.

TPU 03	**Fine Ware**	**Yellow Ware**	**Red Ware**	**Architectural Ceramic**	**Kitchen Ware**	**Glass**	**Total**
Count	89	72	44	13	2	1	**221**
Weight (g)	717	3778	2278	2208	14	< 1	**8995**
AvgWeight(g)	8.06	52.47	51.77	169.85	7	< 1	**40.7**

6.4.4.3 TPU 04

The third and last total pickup of the ShFS01 was performed in the polygon 11149. The field was waterlogged but harvested, with traces of straw placed on the topsoil, reminiscent the HDS surface treatment. The visibility varied between excellent and very good.

In the polygon itself 171 ancient pottery fragments and pieces of 14 architectural ceramics (the modern pottery was omitted) were detected during the systematical field survey. Once again the FW dominated in the material collected during the pickup. It featured very regular size of fragments ranging between coin and half palm size, among them only three glazed fragments and one red-slipped handle were detected. The YW contained one rim from the High Middle Ages (Table 1/7) while the RW featured only non-diagnostic pieces. The KW consisted in body fragments of a coin and half palm size.

The amount of collected AC – both bricks and daub – is outstanding in the lot regarding to the scatter of ShFS01. Two fragments were of a palm size, the others varied between half palm size and coin sizes. One waster was found within the total pickup, but quite certainly it may be connected with a disused modern brick-kiln, located about 500m to the west of the Kulugh-Shakhtepa. The area surrounding the kiln was surveyed the year before and revealed high amount of greenish waster spread on the adjacent fields, often attached to a piece of brick.

TPU 04	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Kitchen Ware	Waster	Total
Count	77	37	18	43	12	1	**188**
Weight (g)	655	1012	672	1839	236	161	**4575**
AvgWeight(g)	8.5	27.35	37.33	42.77	19.66	161	**24.34**

6.4.5 The scatter chronology and interpretation

The scatter spread around Kulugh-Shakhtepa is basically constituted by the pottery and by the architectural ceramics from the High Middle Ages (Table 2). In comparison with the other represented epochs, this period is characterized by the biggest fragments. One sherd of a base and another one of a upper part of decorated stand are included (Table 2/1,2), as well as the characteristic decoration (Table 2/3,4,5). One decorated handle of a lamp of light-green glaze was also detected among the ensemble (Table 2/6).[16] Similar lamp handle with more complicated decoration was found in scatter ShFS03 and it will be described later. Among other fragments was further found a container for mercury (Table 2/7), examples of which are known from the 10th to the 12th centuries AD (Archeological Museum in Termez) and also from the 12th to the 14th centuries AD in Khorezm (Tolstov and Vorobevoj 1959, 326-327).

The High Middle Ages material is mixed with much lower amount of Kushan and Kushan-Sassanid pottery represented basically by small FW pottery fragments (Table 3/2) and exceptionally by storage vessels (Table 3/1). The Early Middle Ages pottery revealed even lower number than the Kushan-Sassanid pottery. Four pieces including a fragment of a pithos (Table 3/3) and others of Table Ware (Table 3/4) were identified. Except one (the pithos) they were all concentrated in a single polygon (10112) about 60m away from Tigrmantepa. Since the chronology of Tigrmantepa includes the Early Middle Ages, those fragments with high probability belong to the tepa's fallouts.

Other three diagnostic pottery fragments dated from the 16th to the 18th centuries AD were concentrated in three different polygons – one fragment in each (an example Table 3/5). Those polygons are located approximately 350m to the north-east from the center of Kulugh-Shakhtepa one next to each other. No other fragments of the same chronology were identified in the scatter. From the neighboring tepas, only Kulugh-Shakhtepa reveales the pottery types of the 16th to the 18th century AD. Due to the low amount of this material found on the fields I would again tend to explain this with the fallouts, this time concerning Kulugh-Shakhtepa.

[16] Very similar lamp fragment was found in Asanas dated into the 13th century AD (Bakturskaya 1979, 127-133).

During the systematic field survey, most of the Kushan and the Kushan-Sassanid pottery was concentrated around the Kulugh-Shakhtepa, while the High Middle Ages pottery was spread around all of the fields with raised amount of the surface material. The TPU 03 in polygon 10135, as well as the test pit in the same polygon revealed, nevertheless a high amount of material posterior to the High Middle Ages, which was however usually very fragmented.

Except the no-name tepa 73 (Danielisová, Stančo and Shaydullaev 2010, 85) which is not dated, the chronology of all of the others surrounding tepas feature very similar characteristic. Tigrmantepa covers the Early and the High Middle Ages, Khosyattepa and its immediate vicinity is dated into Kushan, Kushan-Sassanid and High Middle Ages periods. Kulug-Shakhtepa itself might be dated to the Kushan period, the Kushan-Sassanid period, the Early Middle Ages, the High Middle Ages and to 17th and 18th centuries AD.

If we combine the results of the field survey and the total pickups, the pottery scatter located among those tepas is fully contemporary with Kulugh-Shakhtepa and in the early period also with Khosyatepa (Kushan and the Kushan-Sassanid) and in later period with Tigrmantepa (the Early and the High Middle Age). However, only the Kulugh-Shakhtepa was reoccupied from the 16th to the 18th century AD. The burial-ground located to the north-west of the Kulugh-Shakhtepa also produced pottery covering the same time span as that from the scatter (from the Kushan up to the High Middle Ages). Further, I would not exclude the possibility of detecting earlier material also in the case of Tigrmantepa as it is preserved into a height of approximately eight meters. The earlier pottery may simply not yet have been disclosed.

The test pits confirmed the chronology of the scatter and pointed to the stratigraphy indicated in the polygon 10135. There, as mentioned above, the High Middle Ages brick was placed about 60cm to 70cm underground, while the Early Middle Ages vessel (Table1/1) was detected between 90cm to 100cm underground.

According to Arshavskaya, Rtveladze and Khakimov (1982, 134) other three tepas were visible in the area of Kulugh-Shakhtepa in 80s. First, known as Shortantepa (dimension 30 by10 by 0.5m), dated into the High Middle Ages, was located about 150m the north-east of Kulugh-Shakhtepa. Other two tepas are said to have been placed about 250m and 300m to the south-east. First, Nagaratepa (30 by 20 by 3m) was dated into the Early Middle Ages. The latter one was called Kultepa (20 by 10 by 0.5m) with no closer chronological data.

If we compare the northern area of Kulugh-Shakhtepa with the Corona satellite imagery, several different places might be attributed to the Shortantepa, although none of

them very clearly. The south-eastern area, however, does not feature any anomaly, only ploughed fields. However, if we change the direction to the south-west instead of the south-east, two possible phenomena appears. The Nagaratepa could be attributed to No-name tepa 73 located about 190m from the edge of Kulugh-Shakhtepa (Figure 40). No-name tepa 73 is still preserved up to the three meters, which is also the supposed height of Nagaratepa. Another phenomenon circled in the picture (Figure 40) located about 320m from the edge of Kulugh-Shakhtepa might be associated with Kultepa. On the Ikonos satellite imagery there is no such a feature visible anymore which might be easily explained by the height of the Kultepa in 80s, when it measured only 0.5m. To undertake such an explanation, we have to presume a possibility of the mistake made in the publication of Arshavskaya, Rtveladze and Khakimov (1982).

Arshavskaya, Rtveladze and Khakimov (1982, 134) suggest, that all of the tepas, discussed in the previous paragraph, are remnants of one single site which use to be a part of Kulugh-Shakhtepa. According to the results of the systematic field survey, total pickups and test pits, I would also suggest No-name tepa 73 (Nagaratepa?), Tigrmantepa and Khosyattepa to be included into the one integrated settlement, whose remnants are represented by all of these surrounded mounds, but from the biggest part by Kulugh-Shakhtepa.

6.5 ShFS02

6.5.1 Location

The pottery accumulation connected with the second scatter started about 5.5km to the east from the center of Sherabad along the road heading for Kizirik and Kumkurgan. The pottery finds were detected mostly south of the road, since the area to the north of it was largely covered with houses of contemporary village of Gorin. Only one small field in surface of a polygon of 0.51ha surrounded by modern houses was surveyed in the northern part (Figure 41).

About 110m north of the road lies the closest archeological site, the four or five meters high mound of Gorintepa. The other preserved tepa located nearby is called Gilyambobtepa and lies about 1200m away from the eastern edge of Gorintepa. According to the topographical map (1:100000), another tepa was supposed to lie about 1300m to the west of the western boundaries of Gorintepa (Figure 42). Despite its quite sizeable dimensions (320 by 100 by 4m) neither tepa nor surface material was detected in the defined area. The feature

was investigated in 2011 without setting up polygons as it is located in the grounds of a factory which may probably cause its total destruction.

The satellite imagery granted by the GeoEye Foundation does not cover the area further north of Gorintepa. The missing parts were thus completed by georeferenced Google Earth imagery which featured a worse resolution when cut out from their original place in the application.

6.5.2 A general description

The area of the scatter is represented in total by 25 polygons stretched along the road. They cover 13ha spreading over 746m in the west-east and 300m in north-south direction. Overall 727 pottery fragments might be attributed to the site, on average consisting of 56 fragments in one hectare. There were no stones or modern pottery fragments on the field. Architectural ceramics were represented by ten fragments only which were concentrated in the marginal western part of the site next to the road leading to the south.

During the first year prospection we learned from the local inhabitants that a tepa called "Pastaktepa" (in Uzbek meaning "wide and low tepa") was located in the area directly south of the road. According to the statement of residents, the tepa was visible in time of their fathers and grandfathers, which may mean at least 50 years ago. A part of the tepa was presumably destroyed during the road construction, which seems to lead through the tepas' remnants.

No other features except the Gorintepa (sharply separated from the surrounding fields) are visible in the Corona satellite image (Figure 43). However, the area of the presumable location of Pastaktepa seems to have been already cultivated by the time the imagery was captured. Due to the basic characteristic of the Pastaktepa – "low and wide", it was susceptible to early destruction caused by the agricultural activity.

6.5.2.1 Season 2010

During the first year of the prospection the eastern part of the scatter was examined (Figure 44). An area of 9ha revealed 508 pottery fragments concentrated in 18 polygons, it means of 56 pottery pieces in one hectare. The surface treatment combined transects of ploughed field of excellent visibility with pasture of very good or good visibility. Between the southern part of the road and elevated *arik* running in parallel with the road in 30m distance, was a stripe of a private corn field with visibility varying from very good to low. It was, nevertheless, possible to place two small polygons into the corn field. One of them in

dimensions 75 by 30m, covering 0.2ha, produced a high amount of the surface material: 45 ancient pottery fragments.

No clearly ancient fragments of architectural ceramics were found. Several thick sherds of hand size were detected on the westernmost part of the surveyed filed along the dirt road leading to the south, separating the ploughed field from the unsurveyed eastern part overgrown by cotton (which was examined the following year). The fragments lacking any diagnostic features might have been those of big vessels as well as of architectural components.

Ten hand and palm size fragments of a terra-cotta cauldron stand were collected in four polygons. The fragments have uniform dark red colour and about three cm thick walls. It seems they all belonged to a single vessel dated to the 17th and the 18th centuries AD (Table 4/1)

6.5.2.2 Season 2011

The remaining area under the road was surveyed in the west-east direction from the distance of 720m from the previously detected scatter. However, the area of increased pottery amount continued only in other three transects directly adjacent to the previously surveyed fields. In eight polygons covering four hectares, 219 pottery fragments and ten fragments of architectural ceramics were counted, with the average amount of 57 pieces in one hectare.

The surface of the investigated area was a mixture of ploughed fields with excellent visibility and HDS surface treatments with good visibility. The other investigated area located further west did not reveal any surface material. It was covered by combination of sparse cotton bushes, ploughed fields and HDS treatment.

One additional polygon located to the north of the road was surveyed. It represents the only connecting link between the Gorintepa and the scatter spread to the south of the road. The investigated field had HDS surface treatment with excellent visibility. In total 193 ancient pottery fragments and 11 pieces of architectural ceramics were detected in the area of 0.51ha, revealing much higher amount of the surface material than the rest of the polygons connected to the ShFS02.

6.5.3 The test pits

During the first year of the investigation four test pits were excavated. One of them was placed in polygon 10534, another one in polygon 10533. The remaining two were performed in the polygon 10610, located in a corn field. All of them were situated into the probable central part of the tepa, which was indicated by the locals. The dimensions of the test

pits remained unchanged, the depth, however, varied according to the different conditions of every pit. Considering the polygon 10534 and 10533, the test pits were placed in the westernmost part of the investigated field, in close vicinity of a dirt road leading in north-south direction and separating fields surveyed in 2010 and 2011 (Figure 44 and Figure 45).

6.5.3.1 The polygon and the test pit 10534

During the systematical field survey in the polygon 10534 only 68 ancient pottery fragments were detected. No architectural ceramics or modern pottery was registered at all.

The surface of the examined field was ploughed, the soil was very dry and hard, which made the following excavation difficult. The upper 55cm were uncovered, revealing about 26 pottery fragments. Most of the pottery was obtained, however, in the first 30cm and the amount of the material sharply declined in the lower layer. The pottery was in general very fragmentary except the only one diagnostic sherd dated into the 17th and the 18th centuries AD (Table 4/2).

The excavation work was stopped at 55cm because of the hardness of the soil. Since the test pit 10533 revealed very similar characteristic it was decided to continue only in one place and to open two other trenches in the polygon 10610 with much more favorable excavation conditions.

In the case of the test pit 10534, the top soil was probably fully uncovered, but the judgment is made only on the basis of the excavated depth. The soil kept grey to grey-brown color through all the mechanical layers with no apparent transition (Figure 46)

6.5.3.2 The polygon and the test pit 10533

The test pit in the polygon 10533 was placed about 90m to the north of the previous pit, in a field with the same characteristics. The systemic field survey revealed 79 ancient pottery fragments concentrated in the polygon, but no other material was detected.

The first 50cm of the test pit revealed features very similar with the previous trench. Also the decreasing tendency of the material quantity was noted. Below the depth from 50cm to 60cm, however, the pottery amount started to grow up again.

The soil was grey and grey-brown down to the depth of approximately 70cm, where orange and grey clay coloration with low amount of charcoal appeared. After other excavated 30cm the soil became harder, resembling characteristics of a mud brick wall. Two palm size fragments of a big vessel were dividing the upper orange and grey soil from the harder clayish one placed beneath it. At about the same height (about 100cm) tiny white stripes, grey-green

clayish layers and increased amount of charcoal became visible in the profiles and continued down to 120cm, the maximal excavated depth (Figure 47).

A few tiny fragments with a red slip resembling Kushan and Kushan-Sassanid pottery were detected in the top soil. One rim fragment of a pithos was dated by T. Annaev to the turn of the Kushan-Sassanid period and the Early Middle Ages (Table 4/3). Similar examples are also known from Khorezm from the Early Middle Ages (Nerazik 1959, 242 and 253).

Test Pit			Polygon	10533
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface		1		1
Spit 1	2	49	1	52
Spit 2	1	20		21
Spit 3		32		32
Spit 4	1	57	1	59
Spit 5	9	60	4	73
Spit 6	1	2	1	4
Total	14	220	7	**241**

Polygon	**AC**	**Pottery**	**Other**	**Total**
10533		79		**79**

6.5.3.3 The polygon and the test pit 10610_1

Two test pits were additionally opened in the corn field situated along the road heading for Kizirik and Kumkurgan. The field was regularly watered which made the soil softer and better suited for the excavation. During the field survey, 45 ancient pottery fragments were detected in this small-sized polygon with dimensions 75 by 30m.

The first trench, numbered 10610_1 (also 106101), was placed to the north, in about 20m distance from the test pit 10533 (Figure 45). The trench was conducted into the depth of 200cm. In the profiles (but not on the excavated soil) two layers were distinguishable not without difficulties. The first one, of light brown/grey clayish soil, covered approximately the upper 60cm. It contained pottery, coin size pebbles and charcoal (Figure 48).

The second layer was basically grey, but colored by the alternation of dark gray and orange clayish lenses. In comparison with the previous layer, the amount of charcoal increased while the number of pebbles diminished. Not far from the bottom, in the depth of 185cm, the charcoal and pottery disappeared. There were, however, no significant changes in

the soil structure. The bedrock was not reached and the test pit was abandoned because of the threat of its potential collapse.

In the upper 50cm (the top soil?) a few small pottery fragments from the 17th and the 18th centuries AD were detected. In the lower layers, however, Kushan and Kushan-Sassanid pottery appeared in bigger amount than it was detected during the field survey. In the spit 7 (from 120 to 140cm) Kushan-Sassanid pottery (Table 4/4),[17] Kushan pottery (Table 4/5) and the Early Middle Ages fragments were detected. The material further included several fragments of a strainer, three different necks of jars, one spindle and a terra-cotta token (Table 5/1, 2, 3, 4). Diagnostic pottery, covering the periods mentioned above, was recognized down to end of the spit 8, deeper spits revealed only non-diagnostic small FW sherds and body fragments of big jars.

The category of architectural ceramics is represented by daub only. The "other" material includes solely bones. The number of the pottery fragments contained in the individual spits alternated with no evident pattern. The lowest number was detected in the top soil, while the most of pottery is connected with layer of from 120 to 140cm, which was rich on finds in general.

This test pit was the deepest one excavated during the project. Quite surprisingly the bedrock or sterile soil was not reached. The two meters of the cultural deposit might have been caused by the alluvial deposit and by centuries of cultivation which was from the beginning based on the artificial irrigation.

Test Pit			Polygon	10610_1
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface				
Spit 1		11		11
Spit 2	1	15		16
Spit 3		13	3	16
Spit 4	2	35	2	39
Spit 5	19	34	2	55
Spit 6	2	16		18
Spit 7	1	63		64
Spit 8	2	22		24
Spit 9		27	1	28

[17] Determined according to similarity with pottery ensemble found in Dalverzitepa, see Nekrasova and Pugachenkova 1978, 157.

Total	27	236	8	**271**

Polygon	**AC**	**Pottery**	**Other**	**Total**
10610		45		**45**

6.5.3.4 The polygon and the test pit 10610_2

The second pit placed in the same corn field was located about 11m to the north of the first trench and about 12m to the south of the road (Figure 45). It was excavated into the depth of 140cm, on the surface of the spit 8, where the work was stopped due to groundwater flooding the pit.

The soil structure revealed very similar characteristics with the previous test pit in the area, only the upper layer reached into 30cm underground. The second layer was cut by three cm thick grey-green sandy deposit, varying in the depth of 80 to 120cm. The grey and orange clayish lenses were mixed with burned spots up to the bottom of the tranche (Figure 49).

This test pit was not rich in diagnostic pieces. The detected material mainly contained small body fragments, or non-significant sherds of big jars. Only the Kushan or Kushan-Sassanid red-slipped FW was recognized into the deepest layer, while body fragments of big vessels were presented only down to the bottom of the spit 4. The architectural ceramics was again composed by daub only as well as the "other" group by bones only.

Test Pit			Polygon	10610_2
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface		1		1
Spit 1	3	36		39
Spit 2	2	35		37
Spit 3	3	24	1	28
Spit 4	3	44	6	53
Spit 5	1	27	4	32
Spit 6	2	13	1	16
Spit 7	2	19	2	23
Total	16	198	14	**228**

Polygon	**AC**	**Pottery**	**Other**	**Total**
10610		45		**45**

6.5.4 The total pickup sampling

Two total pickups were realized in the area of ShFS02. The first one (TPU 05) was placed in the questionable area (polygon 11189) located to the north of the road, between the Gorintepa and the newly located Pastaktepa. The second one was performed in the central part of the polygon 10533 (TPU 6), in the probable original place of the Pastaktepa.

6.5.4.1 TPU 05

The first pickup was placed in the HDS field with very good visibility. During the systematic field survey an outstanding amount of pottery fragments was detected in the polygon 11169 (193pcs. and 11pcs. of AC fragments), but none of them was diagnostic. Consequently the main aim of the total pickup was to detect some significant fragments that could help to assign this area to the scatter or to Gorintepa.

Overall 169 fragments were detected in the total pickup, with the highest portion of YW, which was unfortunately all non-diagnostic (Figure 50). Similar situation was also in case of RW and KW, which was both represented by body fragments only. One third of the FW fragments is covered with the red slip, but only three of the them are diagnostic, including one Kushan fragment (Table 5/5)[18] and two Kushan-Sassanid sherds (Table 5/6, 7).[19] The rest of the FW material is quite fragmentary, ranging between the coin and the half palm size, reflecting the highest fragmentation of all of the material from the pickup. On the other hand the biggest fragments reaching up to palm size are contained among the YW and AC fragments.

The total pick confirmed presence of Kushan and Kushan-Sassanid period, but as the most of the collected material is non-diagnostic; presence of other period cannot be excluded from the final consideration.

TPU 05	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Cooking pots	Waster	Total
Count	47	73	24	19	5	1	**169**
Weight (g)	413	4940	1017	1085	92	54	**7601**
AvgWeight(g)	8.78	67.67	42.37	57.10	18.4	54	**44.97**

[18] Similar fragments are known from Ai-Khanum (Lyonnet 1997, 394).
[19] Both fragments have parallels in the material detected in Dalverzintepa (Nekrasova and Pugachenkova 1978, 157).

6.5.4.2 TPU 06

The TPU 06 took place in a harvested cotton field with the cotton bushes still left in place. The visibility on the surface was thus lowered to very good.

The pottery and the AC fragments from the pickup were more fragmentary than in the previous case, but at the same time they were represented in a higher number, 221 fragments were detected. The YW was again predominant in the ensemble even though it was composed of smaller pieces. Most of the fragments might be parts of a big pithoi, as it is one rim with impressed finger decoration dated to the final stage of the Early Middle Ages (Table 5/8). Another pithos dated to the turn of the Kushan-Sassanid period and the Early Middle Ages, makes – due to its dark red color – part of the RW category (Table 6/1). In the FW material, several red slipped pottery fragments were detected. One FW Kushan rim (Table 6/2) has parallels in the settlement of Toprak-kala in Khorezm (Nerazik and Rapoport 1981, 15). Another fragment of a base of a small goblet is dated to the end of Kushan-Sassanid period (Table 6/3).

Three bricks and six pieces of daub belong to the AC material. The fragments range between very tiny pieces and one palm-size sample, covering all categories included between them.

TPU 06	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Cooking pots	Waster	Total
Count	50	110	49	9	3		**221**
Weight (g)	642	4135	1816	512	29		**7134**
AvgWeight(g)	12.84	37.59	37.06	56.88	9.66		**32.28**

6.5.5 The scatter chronology and interpretation

First I would like to mention the chronology of the tepas in the surrounding. Gorintepa, as well as Gilyambobtepa were both occupied constantly from the Kushan through the Kushan-Sassanid period and to the Early Middle Ages.

The settlement chronology of the newly discovered Pastaktepa is, however, much longer. The surface material detected during the systematical field survey consisted of several random fragments of Greco-Bactrian period (Table 6/4, 5), and more numerous fragments of Kushan (Table 6/6) and Kushan-Sassanid pottery (Table 6/7). The Early Middle Ages fragments were not detected during the systematic field survey at all. A few of them were, however, concentrated in the TPU 06 (Table 5/8). Only one fragment is decorated in a

seemingly High Middle Ages manner (Table 7/1). No other such fragments were found on the field or in the test pits. An unusual pottery group, not known in the surrounding tepas, is represented by a lot of the 17th and to the 18th centuries AD materials, recognized only to the south of the road to Kizirik. Several fragments of a cauldron stand were already mentioned (Table 4/1), besides it, a bowl with green/light-blue glaze and a rim of a pithos of pink fabric were found (Table 7/2, 3).

During the 2010 investigation, the 17th and the 18th centuries AD material was detected in the greatest amount. Only a few body fragments of the Kushan and Kushan-Sassanid periods pottery were detected. The 2011 season, however, disclosed much more numerous remains of both mentioned periods. These results might be due to the total pickups, which successfully revealed also small, easily overlooked pottery sherds. The fragmentation of Kushan and Kushan-Sassanid period is in general higher. The main pottery category of these periods encountered on the fields is FW (and pithoi, which are also quite often identified), which is easily breakable. Besides that, in comparison with the High Middle Ages or to the 17th and the 18th centuries AD, the earlier fragments have been present in the cultivated fields for a longer period, which also causes their higher fragmentation.

Moreover, four Greco-Bactrian fragments (Table 6/4,5) were detected during the field survey. This is the only scatter where this period is attested. The settlement continuity of the scatter might have begun already in the Greco-Bactrian period, but the revision of the material from the test pits did not produce any other proof to support this suggestion. Two hypotheses might come to the consideration. Firstly: the Greco-Bactrian layers were not reached in the trenches, but some of the material got on the surface in a past; secondly: the pottery might have been brought here secondarily. In any case, the discovery of the Greco-Bactrian material is very rare in the Sherabad District. Generally the earlier layers are covered by those of the later periods. A good example is related to the investigation of Ladislav Stančo, who, up to 2010, revealed only one tepa out of 69 investigated ones with Greco-Bactrian pottery.[20]

The scatter ShFS02 might be interpreted as an individual site, and without hesitation associated with the Pastaktepa, a low mound destroyed in the past. However the polygon 11169, located on the halfway between the Gorintepa and the probable site of Pastaktepa (Figure 43) might represent a connecting ling between those two features. Both Gorintepa and Pastaktepa reveal Kushan, Kushan-Sassanid and the Early Middle Ages pottery, which testifies of their contemporaneity in the period from the 1st to the beginning of the 8th century AD.

[20] Talashkantepa II (SE mound), located about 20 km in the south-west direction.

The road to Kizirik seems to be built through the ancient settlement (the tepa), as the surface material dispersion continues on both sites into the immediate vicinity of the road. In such a case Gorintepa and Pastaktepa can also be seen as a single site, which was gradually destroyed by the road construction and by the agricultural activity ploughing away the remaining part of the tepa located to the south of the road. The pottery of the 17th and the 18th century AD may reflect a short-term settlement concentrated only in a limited part of the site – its southern area. The material dispersion reaching up to the road may be, of course, also caused by the road building activity, which brought the pottery closer to the road or simply mingled the material from one side of the road to the other. In any case, the existence and chronology of Pastaktepa was proven and approximately determined, while its connection to Gorintepa may remain open for a future discussion.

6.6 ShFS03

6.6.1 Location

The third area with increased number of surface pottery finds starts about two km to the east of the second site, while following the road to Kizirik and Kumkurgan (Figure 51). The main tepa connected with the scatter is called Shishtepa and it is located about 540m to the south of the road. The increased amount of pottery covers the immediate surroundings of the Shishtepa in all cardinal directions, but in the greatest extent the northern area up to the road. Only one stripe of ground, 360m wide and 313m long, leading directly from the Shishtepa to the road is overbuild by houses and remained unsurveyed. The buildings were constructed in last 40 years as on the Corona satellite imagery there are no visible structures (Figure 52).

There are no other tepas in the close vicinity of the scatter, only one questionable feature in dimension 20 by 20m noticeable on the Corona satellite imagery. It was originally located about 50m to the south of the road (Figure 52). However no increased mound or diverse pottery scatters was recognized *in situ*, also the most recent Google Earth imagery captures only fields with no distinguishable anomalies. Unfortunately the Ikonos satellite imagery does not cover this area; consequently the phenomena cannot be compared with the situation in 2001.

6.6.2 A general description

The pottery scatter concentrated around Shishtepa covers 830m in the west-east and 998m in the north-south direction (Figure 51). The total area of 35ha is represented by 69 polygons in which 4149 ancient pottery fragments, 11 modern ones and 183 architectural

ceramics were detected. A high number of stones was marked only in the polygon with the highest detected pottery amount (392 pcs). The modern pottery and AC were detected only in marginal areas of the scatter. The houses north of Shishtepa are most likely to be placed on the top of the site as they are surrounded by dense pottery scatter. Further the decreasing pottery amount connected with growing distance from the unsurveyed area might be noticed. From this phenomenon we can assume that the core of the ancient settlement lies under the houses.

During the field survey in 2010 our team learned from a local man living in the area adjacent to the scatter, that about three years ago a human skeleton, with earrings in shape of half-moon, was found during excavation of water channel. The find was supposed to be made in a pit about 1.5m deep. He localized the approximate place of burial about 200m to the east from Shishtepa. The local man was also supposed to make a similar discovery. According to his words, he found a human skull in a big jar while he walked on a freshly ploughed field (Figure 53). Both of the human remains were allegedly reburied in a different place in the surrounding of the Shishtepa. During the systematic prospection of the field featuring the graveyard characteristic, no special finds were detected. The spot, where the skeleton had been discovered was localised by our interlocutor into an irrigation channel on a border of two fields (Figure 53). The western field features an increased pottery amount which is included into the area of the scatter. The other field, located to the east, on the other hand, reveals almost no pottery finds. However, if the burials were placed in such a depth a possibility of some material getting out to the surface is very small. In this case, only well positioned trenches may clarified this open question of a presence of burial place in the vicinity of Shishtepa.

6.6.2.1 Season 2010

During the project's first year, most of the area of the increased amount of the surface material was investigated (Figure 54). The north-west and the north-east of Shishtepa with a small part on the south of the tepa were surveyed. In 42 polygons connected to the scatter 2123 ancient pottery fragments and 16 modern ones were counted. No ancient architectural ceramics were detected, only 11 fragments of modern bricks. In the overall 21ha a high number of the pottery finds was recorded: in average 102 various fragments in one hectare. The surface of the field had been harrowed shortly before and offered an excellent visibility.

Irrigation channels created boarders of the scatter in the north-eastern and north-western part of the pottery dispersion (Figure 55). This is a very good example of their function – the surface material stays in the approximate place of its origin and very rarely

cross the water channel. It also means that the irrigation system was built by the same time the fields started to be cultivated. This assumption is confirmed by Corona imagery, where no modern-time build water structures (*ariks* or *zebers*) are visible (Figure 52).

6.6.2.2 Season 2011

The few remaining areas of the scatter were investigated the second year of the project. The western and the south-eastern parts in close vicinity of Shishtepa were surveyed, with one additional area of four polygons, located to the north of Shishtepa, right next to the road. In the total of 24 polygons, 2026 ancient pottery fragments and 164 architectural ceramics fragments were detected. There was no modern pottery or modern fragments of architectural ceramics. The visibility of the field varied. It was partly composed by ploughed fields with very good visibility, by HDS fields, also with very good visibility, and by partly harvested cotton field with changing conditions between very good and good visibility. Overall 13ha were covered, making thus 169 fragments of variable material in one hectare.

The ancient architectural ceramics fragments, detected only during this year, make up a strip about 160m wide leading from Shishtepa to the east. It attains the maximal distance of 550m to the west of the tepa. Several other fragments were detected in the single polygons up to 200m from Shishtepa (Figure 56).

6.6.3 The test pits

Two test pits were placed in the polygons 10783 and 10784, one in each. It was these two polygons which yielded the greatest amount of surface pottery found during the 2010 season. Both polygons lay the north-east of Shishtepa in the approximate distance of 150 to 160m.

The dimensions of the pits, the very first ones excavated, were smaller than of the later ones since we tried to do the as little harm to the ground (and to the probable site) as possible. They measured 50 by 80cm which however proved to be insufficient. It was difficult to excavate into the lower spits and also to evaluate the profiles (Figure 57). For these reasons it was decided to enlarge the area of the pit to 80 by 100cm, which was much more suitable for the digging (Figure 23).

The surface of the whole field was furrowed, however during the systematic field survey, which took place several days before the test pit, in was harrowed. The visibility was excellent in both cases, no matter on the different field conditions.

Both pits again revealed very similar characteristics. The soil was composed of light-grey coloured soil with clayish lentils of dark grey colour, small pebbles, charcoal and pottery fragments.

6.6.3.1 The polygon and the test pit 10783

The first test pit was placed in the polygon 10783 in which 320 ancient pottery fragments and one architectural ceramic sherd were detected during the prospection (Figure 51). The pit was dug down to the depth of 60cm where a mud brick wall stopped the excavation. Three spits revealed 170 ancient pottery fragments, three sherd of architectural ceramics, two pieces of glass and 41 bones.

Coin size glazed body-fragments with a decoration characteristic of the High Middle Ages were detected in all three spits. The other material found in the test pit was non-diagnostic, with very high fragmentation. Not even body fragments of red-slipped sherds were detected in the whole lot. Among the AC only three bricks and one daub were found in the whole test pit, which confirms the low rate of architecture ceramics fragments in general in the area.

Even though the test pit was smaller than those described above, it revealed very similar amount of pottery. This can, however, be due to the pottery fragmentation, which was very high in comparison to the other scatters.

Test Pit			Polygon	10783
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface		7		7
Spit 1	1	27	3	31
Spit 2	2	38	9	49
Spit 3	1	59	31	91
Total	4	124	43	**171**

Polygon	**AC**	**Pottery**	**Other**	**Total**
10783	1	320		**321**

6.6.3.2 The polygon and the test pit 10784

The polygon 10784 placed to the north-east of Shishtepa is adjacent to the polygon 10783 on its eastern side (Figure 51). The systematic field survey revealed 392 ancient

pottery fragments accumulated on the surface of the polygon, while no modern sherds or architectural ceramics were detected.

The test pit was carried out into the depth of 90cm, where groundwater appeared and stopped the excavation. Therefore the last spit 5 remained unfinished and had to be reduced to the depth of ten centimetres only.

142 ancient pottery fragments were revealed in the whole test pit. The architectural ceramics were represented by seven daubs only. The excavated material was very fragmentary, mostly represented by non-diagnostic body fragments. The same situation as in the previous pit repeated itself: the High Middle Ages sherds of small dimensions were detected down to the lowest spit, while no red-slipped ware was found at all.

The amount of the pottery in the first three spits was 79 fragments, while it was 124 fragments in the case of the test pit in the polygon 10783. These results are contrary to the amount of the material found during the field survey, in which the polygon 10784 yielded 392 fragments, while in the polygon 10783 320 sherds were noted.

Test Pit			Polygon	10784
Layer	**AC**	**Pottery**	**Other**	**Total**
Surface		3		3
Spit 1	1	29	1	31
Spit 2	1	30	2	33
Spit 3		20	1	21
Spit 4	4	45	4	53
Spit 5 ½	1	18	2	21
Total	7	142	10	**159**

Polygon	**AC**	**Pottery**	**Other**	**Total**
10784		392		**392**

6.6.4 The total pickup sampling

Three total pickups were undertaken in the site ShFS03, each in different direction from the Shishtepa. The TPU 07 was placed in the same square as the previous test pit – in the polygon 10783. The second one, TPU 08, was situated about 140m from the tepa in the south-eastern direction, in the area in which the skeleton was allegedly discovered (polygon 11193).

The last pickup TPU 09 (polygon 10899) was situated on the north-west, 330m far from Shishtepa (Figure 51).

6.6.4.1 TPU 07

The material ensemble of the TPU 07 was very heterogeneous. A big amount of FW fragments was detected. The two largest sherds were in a palm size, other 21 pieces varied between the palm size and a coin size and the remaining amount was even smaller than a coin. A vast majority of the diagnostic FW pottery fragments belonged to the High Middle Ages (Table 7/4-6), most of them were, however, only body fragments with incised or glazed decoration (Table 7/5). Only one FW fragment with bright blue glaze and incised stripes colored by black color dated into the 16th and 17th centuries AD was detected within the ensemble.

The YW was also highly represented; its fragmentation was more or less uniform, basically around the coin or half palm size. The RW featured similar fragmentation, although it consisted of smaller sherd number. The AC was present as both bricks (seven) and daubs (18). Out of them three sherds were in hand size, five were bigger than a coin and the rest was about a coin size. The three fragments of glass were very tiny, all together not weighting even a gram.

TPU 07	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Kitchen Ware	Glass	Total
Count	144	149	41	25	11	3	**373**
Weight (g)	840	3270	810	2982	197	< 1	**8099**
AvgWeight(g)	5.8	21.9	19.8	119	17.9	< 1	**21.7**

6.6.4.2 TPU 08

The field in which the polygon 11193 was set up and where the eighth pickup was conducted, had been ploughed, and offered excellent visibility. During the systematic field survey 159 ancient pottery fragments were detected; no modern pottery, architectural ceramics or stones were noticed.

The systematic field survey in the area around the TPU 08 revealed pottery of the Kushan-Sassanid period (Table 8/1[21],2[22]), whose presents in the area of the scatter was

[21] This morphological shape might be as well dated into the Kushan-Sassanid period (Nerazik and Rapoport 1981, 87) or into the Early Middle Ages (Suleymanov 2000, 181). The Kushan-Sassanid period is however preferred, as the red slip is thicker and very well done which refers to earlier production.
[22] The form is well known from Aktepa (Sedov 1987, Table XVI/3).

uncommon. Occurrence of this material category was a reason for placing the TPU 08 right into this area.

The FW pottery detected in the test pit was even more fragmentary than in the TPU 07, with about eight fragments of half palm size or of a coin size. The resting number was consisted of fragments smaller than a coin size, from which about seven pieces were red-slipped. The AC was represented by small fragments of daub, the biggest example of which measured only about five by four cm. One sherd of a KW pot with burned surface was counted. The YW and the RW was represented by body fragments only.

Compared to the previous total pickup (TPU 07), no glazed or otherwise decorated pottery characteristic of the High Middle Ages was found. On the contrary the red-slipped fragments reflect earlier occupation concentrated in this south-eastern area.

TPU 08	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Kitchen Ware	Total
Count	65	85	39	14	1	**204**
Weight (g)	264	1306	541	304	1	**2416**
AvgWeight(g)	4	15.4	13.9	21.7	1	**11.8**

6.6.4.3 TPU 09

The last total pickup of the scatter ShFS03 was placed in the polygon 10899, which had been surveyed during the first year of the project. The surface survey revealed 93 ancient pottery fragments, no other material was detected. During the total pickup the field was harrowed with excellent visibility.

The material found during the total pickup contained surprisingly high amount of AC. The category was represented by 14 fragments of bricks and 51 lumps of daub. The size of the AC ranged from tiny pieces to palm size fragments with maximal dimensions ten by eight cm.

The YW was again prevalent in number. Among the other fragments it included part of a decorated stand dated to the High Middle Ages (Table 8/3), and several body fragments with incised decoration of the same date. Another High Middle Ages fragment – a bowl rim - was detected in the RW (Table 8/4).

Among the FW pottery pieces of the High Middle Ages and also of the 16th and the 17th centuries AD were represented. The latter two are both decorated by glaze, but with different color and pattern (Table 8/5, 6). Unusual find is a body-fragment of the Arab GW, with impressed decoration and a letter dated between the 12th and 14th centuries AD (Vakturskaya 1959, 312; Table 8/7).

Exceptional find was made by detecting several GW pottery fragments from the end of the 4th century AD (identified and classed by Sh. Shaydullaev; Table 8/8, 9). Similar fragments with same characteristic were found during the systematic field survey in polygon 10899, i.e. where the total pickup was placed. One more polygon (10900), attached to the polygon 10899 directly on the north, reveled several very similar pottery pieces.

TPU 09	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Kitchen Ware	Grey Ware	Total
Count	67	75	27	65	16	10	**260**
Weight (g)	611	1501	760	3639	152	108	**6771**
AvgWeight(g)	9.1	20	28.1	56	9.5	10.8	**26**

6.6.5 The scatter chronology and interpretation

The area investigated during the first year of the prospection revealed almost exclusively the High Middle Ages pottery (Table 9/1-7). Two parts of stands or decorated body-fragments were detected (Table 9/2-4). Also one handle of a green-glazed lamp with imprinted decoration depicting two doves surrounded by plant tendrils was found (Table 9/7). Almost the same representation on the lamp is known from town of Bactra, where it is dated into the 14th and the 15th centuries AD (Gardin 1957, 66-68, Type 2).

In contrast, the areas surveyed in 2011 yielded a high amount of Kushan-Sassanid pottery (Table 8/1,2; Table 10/1[23]). Also the architectural ceramics were recorded in higher amount, covering continually a strip of land directly to the west of Shishtepa. It seems probable, that the architectural fragments correspond to the earlier settlement. The area adjacent to the Shishtepa immediately from the west, south and east, features AC fragments and Kushan-Sassanid material, neither of which was detected in the northern parts of the scatter. The northernmost situated area with earlier dated material is TPU 09, in the polygon 10899. The GW from the end of the 4th century AD was found there (Table 8/8, 9).

The settlement chronology of Shishtepa itself is limited to the Kushan-Sassanid and to the Early Middle Ages period. According to the results of the prospection and of the total pickups, it is probable, that the habitation in the Kushan-Sassanid period concentrated directly on the Shishtepa, and also in its immediate vicinity. None of the two test pits placed north-east of Shishtepa revealed more recent pottery than the High Middle Ages fragments, which confirms this assumption.

[23] This rim of pithos resembles fragments found in Khan-Gaza (Sedov 1987, Table XXXII).

The Kushan-Sassanid pottery scatter reaches 200 to 300m the east and south of Shishtepa, while in the west it reaches as far as 500m. This scatter might be a result of tepa fallouts, as well as it might be a remnant of destroyed marginal areas of Shishtepa. In any case the settlement of the Kushan-Sassanid period was concentrated on Shishtepa itself, and most probably also in its immediate vicinity.

The situation, however, changed in the High Middle Ages, when the north-western and the north-eastern parts of Shishtepa were resettled (probably also the central part, now covered by modern houses). For some reason, the newly arrived inhabitants did not settle down on Shishtepa itself, but preferred its vicinity.

The presence of the graveyard remains a mystery, as well as the determination of the period to which it might belong. The rudimentary description of the finds and of the burial type did not help with its chronological classification.

The sporadic finds of the 16th, 17th and the 18th centuries AD pottery do not constitute any dispersion pattern. Altogether ten fragments were detected in the area of the scatter ShFS03, most of them located around the modern houses, in the probable centre of the High Middle Ages settlement. The central place covered with houses could also have been inhabited on a small scale during the period from the 16th to the 18th century AD, as it appears to be a case of the southern part of Pastaktepa (ShFS02). This assumption is difficult to prove without closer investigation of the area, which is disturbed by the buildings. The place, however, might have been resettled in modern times in hypothetical continuity of the 18th century AD occupation.

6.7 ShFS04

6.7.1 Location

The fourth detected scatter is situated in the surroundings of Ayritepa, a mound of the same name as the village built on the western border of the dispersion (Figure 58). The other closest known archaeological site is Shishtepa, which is located about two kilometers to the north.

It is visible in the Corona satellite imagery, that the area enclosing the tepa was not cultivated by the time the picture was captured (Figure 59). Also the village did not exist yet. The imagery shows, however, another interesting feature. It is an irrigation channel about 25 to 30m wide leading in the north-south direction next to the western part of the tepa. There are no visible remains of the channel in the most recently captured Ikonos and Google Earth satellite imagery and the current irrigation network runs in different directions (Figure 60).

6.7.2 A general description

The area around the site was divided into 50 polygons, containing 2218 ancient pottery fragments, 58 modern ones and 179 fragments of architectural ceramics. Overall 21.5ha were covered by the scatter, i.e. there was in average 104 pottery and architectural fragments all together detected in one hectare. The scatter is from its greater part concentrated to the north-west and south-east of the tepa with the biggest pottery amount accumulated in the north-western part, in an area surveyed in 2010. The vast majority of the modern pottery was also found in this part, not surprisingly, as it is surrounded on both sides by recently build houses.

The test pits were not performed on this site because of the lack of time during the 2010 season. The second year of the investigation also proved unsuitable for the excavations due to rainy weather which also caused flooding of the dusty driveway and complicated the access to the site in general.

6.7.2.1 Season 2010

During the first year of the investigation only small part of the site was surveyed because most of the area was overgrown by dense cotton bushes (Figure 61). The accessible fields were covered by HDS field treatment with good visibility. Only 15 polygons were featuring increased pottery amount in the total number of 831 ancient fragments, 55 modern ones and 55 sherds of architectural ceramics. The scatter covered an area of 6.5ha with an average number of 145 fragments in one hectare.

Only few sherds detected during the first year were diagnostic. There were several fragments bearing incised or glazed decoration characteristic for the High Middle Ages (Table 10/2,3[24]). Only one pithos from the Kushan period was detected (Table 10/4).[25]

6.7.2.2 Season 2011

During the second season of the field prospection much wider area around Ayritepa was surveyed. All directly adjacent fields were walked. They had in general very good visibility and HDS surface treatment, except for the part located directly to the east of the tepa, which featured a mixture of HDS and pasture. It turned out that the pottery accumulation found to the north/north-west of Ayritepa during 2010 season was just a tip of an iceberg. The scatter continued in the south-eastern direction, about 450m further from the tepa. 35 polygons in total revealed increased pottery number in amount of 1387 ancient pottery

[24] Similar fragments of such a lid are known from Khorezm (Vakturskaya 1959, 282, ris.5/7).
[25] Determined in accordance to Lyonnet 1997, 395, fig. 56/10.

fragments, three modern ones and 122 pieces of architecture ceramics. In total 15ha were walked, yielding on average 101 variable fragments each.

Although a few body fragments of the High Middle Ages pottery were detected on the surface, earlier material appeared in much higher quantity. Several fragments of Kushan pottery were detected (Table 10/5; Table 11/1,2), also Kushan-Sassanid (Table 11/3) and the Early Middle Ages pottery fragments were included in the material (Table 11/4,5).

6.7.3 The total pickup sampling

Three total pickups ware carried out in the area of the scatter ShFS04. The first one (TPU 10) was placed in the area investigated during 2010, placed about 155m north-west of the foot of Ayritepa. Another one (TPU 12) was situated about 110m to the east of Ayritepa. The last one (TPU 13) was located approximately 135m in the south-east direction of the same tepa (Figure 58).

6.7.3.1 TPU 10

This was the only total pickup in the area surveyed during the first year of the project. According to the well-functioning rotation system of local agriculture, the sampled field was in the second year of the survey covered by a cotton field. The cotton bushes were mostly harvested; however, leafless torsos of the plants were left on the field. This slightly reduced the surface visibility which, however, still remained very good.

The pickup was carried out in the polygon 11027 containing the highest pottery amount of the entire scatter. 178 ancient pottery fragments, 26 modern pottery fragments and another 26 pieces of architectural ceramics were detected during the field survey.

In the pickup itself a total number of 146 fragments was detected without any other additional material. The category of architecture ceramic consisted of four bricks fragments and six daub pieces. One of them was in the size of a quarter of a whole brick, one in the palm size and the others varied, with the smallest in dimension of a coin. The YW and the RW was represented by very similar amount of material, but the fragmentation of the YW was slightly higher. In both groups, there were few bigger pieces of approximately five by five centimeters; the rest was smaller, featuring quite uniform dimensions. The FW was composed of fragments of a uniform size in dimensions of a coin. One rounded terra-cotta bead of 2.5cm in diameter and a hole of 0.8 cm in the middle was also found within the pickup (Table 12/3).

Several Kushan-Sassanid fragments were identified, mainly represented by fragments of storage vessels. Among them, one YW rim of a pithos (Table 11/6)[26] and two RW rims of pithoi (Table 11/7[27], 8[28]) were found. The FW was represented by two slipped rims, which could not be dated more exactly, however according to their surface treatment they might be assigned to the periods starting with the Greco-Bactrian epoch and ending with the Early Middle Ages (Table 12/1,2).

TPU10	**Fine Ware**	**Yellow Ware**	**Red Ware**	**Architectural Ceramic**	**Kitchen Ware**	**Bead**	**Total**
Count	36	49	48	10	2	1	**146**
Weight (g)	393	2481	2848	2540	44	<1	**8306**
AvgWeight(g)	10.9	50.6	59.3	254	22	<1	**56.9**

6.7.3.2 TPU 12

The second pickup was placed in the polygon 11265 situated about 15m to the west of a *zeber*. During the field survey, 121 ancient pottery fragments were found. Architectural ceramic and modern pottery was not detected at all. The area was partly covered by scrubs; therefore it featured only good visibility.

All the material detected in this total pickup is more fragmentary than it was in the previous case, except for the YW, which together with the RW holds the first position in the sherd amount. Groups of the KW and the GW were constituted by body fragments only. The majority of the KW was burned from both sides, which could be caused secondarily.

The FW pottery is very fragmentary without any diagnostic pieces. About ten sherds are of a coin size or slightly bigger, but the rest has much smaller dimensions. The preserved body fragments feature either white or yellow surface, decorated with parallel incised lines (High Medieval Ages?),[29] or a red slip (which can be dated from the Greco-Bactrian period up to the Early Middle Ages).

Although no AC material was detected on the surface, two pieces of brick in dimensions five by five centimeters were found in the pickup. Furthermore, three pieces of grey/light green waster of similar dimensions as bricks were counted.

[26] It was identified according to the material known from Dalverzintepa (Nekrasova and Pugachenkova 1978, 157).
[27] This shape is also known from Dalverzintepa (Nekrasova and Pugachenkova 1978, 157).
[28] A similar fragment was found in Darakhshatepa (Sedov 1987, Table XXXI/6).
[29] The fragment is dark red and roughly made, which makes it different from the typical YW High Middle Ages pottery decorated by this pattern. Also the High Middle Ages pottery is usually very well levigated. Very similar fragment to this red one was detected in the TPU 13, it is mentioned on the following page.

TPU12	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Kitchen Ware	Grey Ware	Waster	Bone	Total
Count	45	61	62	2	10	3	3	1	**186**
Weight (g)	285	3399	1920	88	180	28	124	< 0	**6024**
AvgWeight(g)	6.3	55.7	31	44	18	9.3	41.3	< 0	**32.4**

6.7.3.3 TPU 13

The last southernmost pickup of the site was located in the polygon 11282. Ninety-eight ancient pottery fragments and seven pieces of architectural ceramics were found during the systematic field survey, no modern pottery was detected. The surface treatment featured HDS conditions with very good visibility.

The surface material was less diverse than in the previous pickups applied on the site. The FW consisted of very tiny pieces barely reaching a coin size. In the YW and the RW only one body fragments decorated by incised parallel lines was identified (High Middle Ages?). Otherwise, no red-slipped, glazed, or in any other way decorated (= significant) pottery fragment was discovered.

Once again the YW and the RW yield very similar amount of sherds, with higher fragmentation of the RW composed from 50% of tiny pieces while the other half was composed of coin size and five by five size fragments. The biggest dimensions of the YW sherds were in four cases around the palm size while the smallest had the size of a coin.

One of the two wasters detected in this square was rounded, in size of tennis ball; the other one was smaller of approximate dimensions five to five centimeters. The architecture ceramics fragments consisted of daub only. Four fragments were of palm size; six were smaller than a coin and the rest varied between these sizes.

TPU13	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Waster	Total
Count	19	25	23	16	2	**85**
Weight (g)	83	1119	313	1899	383	**3797**
AvgWeight(g)	4.4	44.8	13.6	118.7	191.5	**44.7**

6.7.4 The site chronology and interpretation

During the first year of the investigation, the scatter revealed only few diagnostic fragments dated to the High Middle Ages (Table 10/2, 3), which preliminarily assigned the scatter into the same period. However, new pottery finds detected during the 2011 season

extended the chronology. Kushan, Kushan-Sassanid, the Early Middle Ages and the High Middle Ages fragments were cumulated not only in the area adjacent to Ayritepa, but several fragments were also detected behind the *zeber* to the east and behind the dust road to the west of Ayritepa.

Despite of the high amount of pottery finds connected with the site, still only few of the fragments are diagnostic and permit us to state their date. A significant group of finds is however constituted by a number of pithoi from the Kushan period (Table 10/4,5), Kushan-Sassanid period (Table 11/6-8) and from the Early Middle Ages (Table 11/4,5).

The chronology of the scatter, however, does not follow any development pattern. The material from all the mentioned periods is spread around the tepa in all cardinal directions and, considering the sum of 2010 and 2011 seasons, the amount of finds from the single epochs is equal.

Ayritepa itself reveals pottery material from Kushan period – with the 3rd century AD ensemble, which might also include the Kushan-Sassanid period, and from the Early Middle Ages. No High Middle Ages pottery is known from the tepa.

Although the pottery scatter reaches up to 500m north-west and up to 450m the south-east of Ayritepa, the core of the scatter covers only 260-270m in both directions. The dispersion apparently copies the plowing which distributed the material from the foot of Ayritepa further away. Unfortunately, unlike the previous cases we do not dispose of any material from test pits placed in the area of this scatter and therefore we cannot follow the finds into the "depth". Nevertheless, when we consider that the dispersion of the pottery reaches as far as 80m to the east and 50m to the west direction, the original surrounded inhabitation was apparently not that large (Figure 58). The scatter is in those directions limited by *zeber* (to the east) and the dust road (on the west) and we may suppose that all fragments found across those man-made boundaries were brought to their finding place secondarily. There are more fragments behind the dust road (maximum 27 in one polygon) than behind the *zeber* (maximum nine) which reflects the difficulty of crossing these obstacles. For secondary displacement it is more probable to shift the material over a slightly elevated road than over a several meters deep channel. This is another example of the recent irrigation channel network enclosing the pottery scatters in the original location or nearby.

It cannot be excluded, however, that the inhabited area was shaped into an oval which is currently marked by the increased pottery amount in the northern and the southern part of Ayritepa. This might be ascertained by test pits placed in the vicinity of the tepa in all cardinal directions.

The finds revealed another interesting phenomenon. On the tepa and also all over the scatter, an increased amount of pottery wasters was detected. This material was also sporadically found before in the other scatters, but always in small fragments. Its occurrence might be connected with clay processing or manufacture taking place on the site. The idea is also supported by an outstanding amount of diagnostic pieces of pithoi found around the tepa, which might be manufactured here.

6.8 The area around Jandavlattepa

6.8.1 Location

Jandavlattepa is an archaeological site situated about ten kilometres to the south-east of Sherabad. It is placed along the western part of village Saidabad and located about 800m from the right bank of the Sherabad Darya.

All of the measurements referring to a distance of newly identified sites or scatters are measured from the citadel of Jandavlattepa. The elevation point is located on the western part of the tepa, as it is also marked on the topographical map in scale 1:100000 (Figure 66).

6.8.2 A general description

The site which had been settled from the Early Iron Age to the Kushan-Sassanid period has a unique value for the Czech expedition. It was investigated from 2002 to 2006 by the Institute for the Classical Archaeology in Prague (Abdullaev and Stančo 2003; Abdullaev and Stančo 2004; Abdullaev and Stančo 2005; Stančo *et al.* 2006; Abdullaev and Stančo 2007; Abdullaev and Stančo (eds.) 2011). During the excavation period several observations of cropmarks were noted in the immediate area of Jandavlattepa. The systematic filed survey was supposed to reveal the exact location and character of those features. Their cognition was very important for understanding of the development of the settlement structures in the area adjacent to one of the biggest archaeological sites in the Sherabad District. Consequently, the prospection of the surroundings of Jandavlattepa was one of the main reasons to start the systematic field survey project.

Two elevated features in Jandavlattepa's hinterland were observed and excavated in the past. One of them was investigated by the Czech expedition in 2005 (Urbanová 2011), the other one by the Soviet expedition during 1972 (Pidaev 1974). The first one was located about 700m to the north-east of the Jandavlattepa, while the exact location of the second one remained unknown. Its precise location was thus also one of the aims of the systematic field survey.

6.8.3 Season 2010

Already in the first year of the field survey, the surroundings of Jandavlattepa became the object of our interest. The adjacent area was, however, covered by cotton and pasture and therefore not suitable for the investigation. Only several areas with good surface visibility were surveyed (Figure 62). Thanks to their limited surface, they could be walked in a single day prospection. To the north and the north-west of Jandavlattepa, 69 polygons covering 2.7ha were walked in the pasture field, featuring very variable surface visibility dropping in same polygons to 20%. The results of the survey were 20 ancient and two modern pottery fragments and two pieces of architectural ceramics. All finds were body fragments with no diagnostic features to be determined.

6.8.4 Season 2011

Before the beginning of the 2011 season, topographical maps of Sherabad Oasis were obtained. These maps in the resolution of 1:100000 were compiled during the 1970s and 1980s. The whole investigated area is divided in these maps in four separate sheets, each covering 44km x 37km (latitude × longitude). Jandavlattepa and the surrounding area are placed in the part of the overall map created between 1975 and 1985.

Depending on the topographical maps, seven features on the right bank of the Sherabad Darya marked as tepas were detected. All of them are situated within the range of two kilometres from Jandavlattepa. The four closest ones were surveyed in a systematic order, i.e. by the same way as the previously discussed scatters. The new features are marked on the map by numbers 150, 154,155 and156[30] (Figure 63). Other two features, more than a kilometre away to the south of Jandavlattepa marked in the map by numbers 152 and 153 were surveyed extensively without placing polygons. The last feature, more than two km away to the south-east was not surveyed at all. It is labelled by a working number 11, which does not belong among the examined sites and it might be investigated in the following survey seasons (Figure 64). The site excavated by the Czech team (Urbanová 2011) is not marked on the map.

From the literature we learned about a tepa located one kilometre to the south-east from the Jandavlattepa called Pachmaktepa which was excavated during the year 1972 (Pidaev 1974, 32-42). By the time of the excavation it was reported to have 30m in diameter and three meters in height.

[30] These are the respective numbers given by Czech-Uzbek team to the sites of the Sherabad District as a whole.

At present, none of the features in this area marked in the maps is elevated anymore, but when we compare Ikonos imagery and the Corona imagery we can clearly recognize one tepa on the Corona imagery still preserved in the landscape. Its position roughly corresponds to one of the features marked from the topographical maps and labelled here with the number 150 (Figure 65).

The surface cover was diverse and it is discussed separately in each investigated area. If not stated otherwise, no unusual vegetation characteristic or soil mark was recognized.

6.8.5 Features 150, 154, 155 and 156

These four features were investigated through systematic field survey. The coordinates of each of them were marked in GIS application and downloaded to PDA, which showed us the approximate location of the point in the map directly in the field. Considering the geographic deviation caused by georeference, each point was surveyed into 200m distance from its predicted location in all cardinal direction.

6.8.5.1 Feature 150

Number 150 corresponds best, out of all of the investigated features, with the probable original position of the Pachmaktepa. Even though the pottery scatter was discovered about 150m to the west of its location predicted from the maps, the material found on the field perfectly matches with the published ensemble from the excavation. The pottery is largely represented by cylindrical-conical vessels, typical for the area of North Bactria in the first half of the first millennium BC (Pidaev 1974, 35-37). The material is dated to Kuchuk III and Kuchuk IV (covering also the Achaemenid period; Table 12/4-10). In South Uzbekistan, similar morphological forms are known from Talashkantepa I (Zapparov and Retvaladze 1976, 19-24) or Kuchuktepa (Askarov and Albaum 1979, Albaum 1969, 69-79).

The surveyed area is divided into two parts by an irrigation channel. The symbol pointing out to a tepa detected on the topographical map was marked on the western side of the channel in HDS field with excellent to very good surface visibility. Around this feature three fragments were detected reflecting the main characteristics of the cylindrical-conical vessels and one small rim with red painting.

The area surveyed to the west of the channel brought to light a higher amount of pottery finds. The core of the accumulation is located in four polygons, containing altogether 128 pottery fragments. Modern pottery or fragments of architectural ceramics were not recognized. The surface was partly furrowed, partly pastured, with surface visibility varying between excellent, very good and good. The core of the scatter covered an area of 1.6ha.

6.8.5.2 TPU 11

The only pickup made in the area around Jandavlattepa was placed in the polygon 11452, revealing the highest amount of material on the site 150. During the systematic survey 55 ancient pottery fragments were detected in this polygon.

Almost twice as much material was found in the total pickup than in the whole polygon. The architectural ceramic, which was not detected during the field survey, was represented by two pieces of brick in the size of approximately five by five cm. The quantity and the dimensions of the RW and the YW were almost equal, although the RW was represented by five big pieces of the palm size. The rest of the ensemble of both groups ranged between the palm and the coin size. The characteristic cylindrical-conical vessels were detected in the both mentioned groups (Table 12/4-10). The FW was represented by body fragments, except for one very thin rim which, too, belongs to a pottery form characteristic of the Achaemenid period (Table 13/1).

A unique find is constituted by a pestle. It is made of a hard black stone, and according to Sh. Shaydullaev identification, it was imported from an area of the present day Afghanistan. It is almost intact except for the upper part which is broken. The height of the preserved part is 4.1cm, the diameter of the shaft 2.6cm, and of the lower wider part 3.1cm (Table 13/2).

TPU 11	Fine Ware	Yellow Ware	Red Ware	Architectural Ceramic	Pestle	Total
Count	19	34	38	2	1	**94**
Weight (g)	68	873	1064	116	57	**2178**
AvgWeight(g)	3.6	25.7	28	58	57	**23.2**

6.8.5.3 Feature 154

Another point detected on the map is located about 1000m to the north-west of Jandavlattepa. The scatter starts in the predicted area and continues for another 150m further to the north. The four polygons set up in the area have yielded an increased pottery amount in the overall number of 57 ancient fragments and two pieces of architectural ceramics, included in 1.7ha. The field was furrowed with increased soil moisture and the visibility varied between very good and low.

Three diagnostic fragments were found within the area: a rim, a base and a piece of the transition between the conical and the cylindrical part of the vessel's walls (Table 13/3,4). Chronologically they all belong to the same period, Kuchuk III or Kuchuk IV.

6.8.5.4 Feature 155

About 870m to the west of the Jandavlattepa another small scatter starts connected with a feature known from the topographical maps. According to the information given by the map it should be two meters high (Figure 66), but as it was mentioned before, there is no evident elevation resembling a tepa in the investigated area. Five polygons create the scatter, covering 2.6ha and containing 45 ancient pottery fragments and seven architectural ceramics. The surface was a combination of HDS and harvested cotton field covered with leafless bushes; all with excellent visibility.

The detected material revealed the same chronology as the previous ensemble, i.e. the periods of Kuchuk III and Kuchuk IV (Table 13/5), but also one fragment of a cauldron stand very similar to the one found in ShFS02 was revealed. The stand is supposed to be dated to the 17th and the 18th centuries AD (according to T. Annaev). Further two rims of pithoi from the turn of the Kushan-Sassanid period and the Early Middle Ages were recognized (Table 13/6,7).[31]

6.8.5.5 Feature 156

The last feature from the group of the closest scatters is located about 550m to the west of Jandavlattepa. It is connected only with two polygons containing together 34 ancient pottery fragments and ten pieces of architectural ceramics. The surface was covered by HDS field surface cover with excellent visibility. Both polygons together covered one hectare.

The material once again points to the Achaemenid period (Kuchuk III); the ensemble is represented by one rim, one base, and by several body fragments (Table 14/1,2). One pithos rim, however, resembles, as in the case of scatter 155, pottery from the turn of the Kushan-Sassanid period and the Early Middle Ages (Table 14/3).[32]

6.8.6 Features 152 and 153

Numbers 152 and 153 represents features known from the topographical maps which were investigated extensively without placing polygons. The area of the predicted tepa localisation was surveyed in wider intervals from 20 to 25m. In both cases we managed to

[31] Both fragments are very similar to the types found in Aktepa II (Sedov 1987, Table XXIV/1-3).
[32] As before, the shape resembles finds from Aktepa II (Sedov 1987, Table XXIV/1-3).

cover about 300 to 400m in vicinity of the predicted points. The aim was to localize the core of the scatter and to place polygons on the top of it. This plan failed already in its initial phase as we did not find neither the core nor the scatter.

6.8.6.1 Feature 152

The Feature 152 was placed about 60m to the north of a drainage channel, described in detail in connection with the feature 153. The Ikonos and the Corona satellite imagery in the approximate area of this point shows an indistinct rounded hillock of about 20m in diameter, located in the same area as the "tepa sign" detected on the topographical map (Figure 64, to the right of the "sites TOPO" 152). On the most recent Google Earth imagery the area of the direct predicted feature is overgrown by vegetation, which plays a significant role in the feature identification (i.e. no unusual phenomena are observed in the imagery).

In spite of the fact that the surrounding fields encircling the surveyed area were waterlogged furrows, quite a wide strip of a ground was walked (430 by 140m) around the predicted tepa (especially of the northern area). There was almost no material on the field, except for the upper surveyed part of the field, located about 300m to the north-west of the feature and approximately 100m to the south-east from the closest road. Several random pieces of architectural ceramics were found and also a mixture of about 12 pottery fragments. Among them a part of a mercury container dated to the High Middle Ages, a red slipped handle (Greco-Bactrian, Kushan or Kushan-Sassanid period), or a conical item which might be a leg of an animal statue, or a foot of a small stand.

I would not connect the material with the feature detected on the topographical map due to the significant distance (360m) between them, and also because the detected pottery amount makes only 1/3 of the lowest pottery number interpreted as the site (feature 156 with 34 ancient pottery fragments). Therefore the provenance of several pottery and AC fragments remains unknown (probably secondary displacement). Consequently the location and the character of the feature 152 had not been verified.

6.8.6.2 Feature 153

The area of the feature 153 was placed in a harvested cotton field with very good surface visibility. On the topographical map it is marked by a sign different from the rest of the investigated features, combining an elevation symbol with a contour line. This symbol is, however, generally used for the tepa which is elevated.[33] The point resembling tepa is placed

[33] A very similar sign is adopted also in the case of Jandavlattepa, in which, however, a triangle with a dot in the central part is used instead of a square with a dot in a central part.

on the map directly next to a wide and deep drainage channel (*zeber*). The channel must have been created during 1970s since it is not visible in the CORONA satellite imagery yet, but it is already drawn in the topographical map (Figure 65 and Figure 66). During the field investigation the position of the elevation point was not found at all. The whole area running along the *zeber* has been disturbed, flanked by piles of excavated earth on both sides. A dust road leads along the southern bank of the *zeber*. It is wide enough for a tractor to pass and build up on a beaten earth gained from the channel excavation.

Judging from the very little finds detected in the adjacent field (only three body fragments in area 250 by 300m) the elevation point/the tepa was destroyed leaving very little traces. Only a circle with small amount of not fully-grown vegetation among the cotton bushes placed about 60m to the south of the channel might be a consequent of a previous human activity. A similar situation was observed by the team of Ladislav Stančo during year 2005 while excavating Jandavlattepa. According to the information given by L. Stančo, one elevated hillock (the one excavated in 2005, Urbanová 2011) and two flat spherical features were noted from the citadel of the Jandavlattepa. They were all located in the area to the east of the irrigation channel leading to the north of the Jandavlattepa (approximately in the northern area covered by the polygons, Figure 63). Except for the hillock, those flat features were perceptible during the 2005 season only. They were characterised by a small amount of very bad quality cotton which was stunted and crooked (Urbanová 2011, 102). However, during the systematic field survey of the surrounding areas in 2010, no unusual cropmarks or increased amount of surface material was detected.

6.8.7 The chronology and interpretation of the detected features

The amount of the material found in the connection with the features 150, 154, 155 and 156 was much lower than in the previous cases. Their identification was done, however, on basis of the "tepa sign" drawn in the topographic map and of the ascertainment of pottery presence on the field in the vicinity of the point. As stated above, except for the investigated scatters, the number of the surface material was in all the surveyed areas very low. Therefore an identification of at least a slightly increased amount of ancient material accumulated in the middle of a field is likely to be associated with a previous human activity.

The features 150 and 154 revealed only Kuchuk III and IV pottery; the features 155 and 156 both yielded – besides the Kuchuk III and IV material – also rims of pithoi from the turn of the Kushan-Sassanid period and the Early Middle Ages. However, the Kuchuk type pottery predominated in the ensemble of all of those mentioned features. As a result, all of the

sites marked by the scatters seem to be contemporary with each other, and also with the earliest layers of Jandavlattepa, which presumably played the role of the principal settlement in the area from the Early Iron Age onwards.

The exact location of the features 152 and 153 has not been ascertained, but both of the presumable tepas are visible on the topographical map located in close vicinity of a wide *zeber* and of one of the most frequented dirt roads. Both of those elements could contribute to the early destruction of the tepas.

The topographical map, however, does not show another feature still visible in the landscape, located about 700m north-west from the Jandavlattepa, investigated by the Czech expedition during 2005 season.[34] In the time of the excavations it was a hillock oval in plan with dimensions 8 by 6.5m. According to the local inhabitants the feature was preserved until the mid of the 20th century AD to the height of a one-storey building before it got disturbed by agricultural activity. By the excavation itself, a few pottery finds were revealed dated to the Greco-Bactrian and the late Kushan periods (Urbanová 2011, 102-104).

In summary, there are five investigated features, all located within a one kilometre distance from Jandavlattepa. They may be considered as human-made structures on basis of the pottery material, location in the topographical map, or, in case of the hillock, *in situ.* The low amount of surface material may suggest their function. Probably they all were small sized dwellings occupied only during short-term period. The hillock investigated by the Czech expedition was interpreted as a funerary or cultic structure of Greco-Bactrian or Kushan period (Urbanová 2011, 12-14). According to the pottery types discovered by the field survey, the majority of the Iron Ages pottery included Table Ware while the Kushan-Sassanid finds comprised storage vessels only. Those finds may very well refer to the residential character of the structures, although such vessels might have been used in shrines as well, as containers for offerings. The find of a cauldron stand would, however, support the ideal of the settlement character, although its discovery was unique, and its connection with the scatters remains unclear for now.

While comparing the chronological data gained from the Czech-Uzbek investigations, it seems, that the "hillock" excavated in 2005, fills a gap between the occupations of the features known from the topographical maps. We may only assume that all of the mounds played the same role, even though they were used in different periods. The 17th and 18th

[34] It remains unclear for what reason some of the features were omitted from the topographical maps by the Soviet cartographers. Judging from the finds, the hillock originated in ancient period, and thus must have been visible in the landscape when the maps were being compiled.

century AD cauldron might be secondary brought to the field and since we have only one fragment of such a data, I do not interpret that as a settlement of the 17th and the 18th century AD. It is included into the following table only for illustration of all of the material detected on the field.

	Kuchuk	Greco Bactrian	Kushan	Kushan Sassanid	17th - 18th c.
No.150	X				
No.154	X				
No.155	X			X	X
No.156	X			X	
"Hillock"		X	X		

6.9 The area around Talashkantepa II

The area of Talashkantepa II, situated about 18km to the south-west of Sherabad, was investigated by a one-day prospection only. Two features out of 21 detected in the 1:100000 topographical maps were surveyed (Figure 67, 68). Only eight fragments were found in 71 polygons, covering about 40ha. Among them four ancient, two modern pottery and two (none precisely identified) architectural ceramics fragments were detected.

These structures might be small dwellings for whose operation a large amount of pottery was not needed. They had to be ruined in past 40 years, however there are no modern structures in their vicinity which could cause their destruction. Probably they were of small dimensions and destroyed by agricultural activity.

7 Conclusion

The investigated fields covered approximately seven square km, which represents only one percent of the whole cultivated lowlands of the Sherabad District. Consequently the discussed situations and results of the project are based on this representative sample only.

All the numbers of pottery and architectural ceramics fragments recorded during the systematic field survey express the average values, as do the amounts of material gained from the test pits and total pickups. The resulting numbers are compared in average amounts and presented here only for illustrative purposes. The main aim of the pottery collecting was however to gain enough material to determine the chronology of the scatters.

The systematic field survey proved to be an effective method for data collecting. The flat scatters concentrated around the settlement mounds were enormous while compared to the elevated (visible) part of the tepa itself – e.g. the scatter ShFS03 covers 35ha, while the Shishtepa has an area of 1.1ha. Not the whole area of the scatter might be attributed to the original dimensions of the settlement, but as we know from the systematic field survey, some of the other tepas do not have pottery accumulation in their vicinity at all. Such sites probably have had a different function in the ancient times. If we consider a possibility of surveying the adjacent areas of all of the detected tepas in the Sherabad District, we could divide them according to the amount of the surface material into different classes. Small dispersions, such those around Jandavlattepa, might reflect short time settlements or small structures such as sanctuaries; the bigger mounds reflect the size of the settlement and probably also its importance. By determination of the approximate dimensions of the original ancient settlement, the relationship between the individual archeological sites might be closely defined. An exceptional situation was noted in the vicinity of Talashkantepa II, where no surface material was detected in the area of the predicted tepas. The amount of the material connected with the site must have been very low, even in the ancient times. The function of such constructions might be clarified by a survey of the remaining 19 tepas located in their immediate vicinity.

The chronology of the investigated scatters was closely determined after the second year of the project, when the pottery dispersions were fully surveyed. The interpretation of the scatters drawn on the basis of a one-year prospection only would have been different than it is now, when the area is fully covered. For this reason the essential information of all of the investigated areas are described in the text according to the different seasons – 2010 and 2011 – to illustrate the differences between the possible results of the two years investigation. For example during the 2011 season the scatter ShFS01 and ShFS04 revealed much larger

quantities of surface material than the first year; the survey of ShFS02 pointed out to a possible unity of Gorintepa with Pastaktepa and the ShFS03 revealed Kushan-Sassanid pottery which was not found during the first year investigation at all.

Several general conclusions involving the settlement practices can be drawn on the basis of the four investigated scatters. The settlements of the High Middle Ages were probably spread over more extensive area then those of the earlier periods. In the case of ShFS01, most of the discussed tepas (considering also those known only from the literature) revealed the High Middle Ages pottery, which was also predominantly represented in the scatter. A similar situation was revealed in the case of ShFS03, when the most extensive north-eastern and north-western area of the scatter yielded the High Middle Ages pottery only. Another pattern results from the finds of the 16th, 17th and the 18th centuries AD pottery. Finds from these periods were recognized in the ShFS02 accumulated in the limited southern part of the scatter. Similar cluster revealing also this chronology was the ShFS03, where the 16th and 17th century AD pottery concentrated around the modern settlement located in the center of the High Middle Ages settlement. Other three fragments were found next to each other in the ShFS01. In contrast to the High Middle Ages, the pottery of the 16th, 17th and the 18th centuries AD seems to be concentrated in limited areas only. All this mentioned information might result in the evaluation of the settlement practises and of population grown or decline. Very preliminary we may expect the growth of population in the High Middle Ages and its decline in the 16th, 17th and the 18th centuries AD.

The test pits performed in three out of four scatters proved to be an effective method of investigation. Their significance was proven the most while evaluating data from the ShFS04, the only scatter in which the test pits were not applied. The information usually given by the trenches was missing during the scatter interpretation.

The tables placed in the main text shows variability of the results gained from the average number of the material detected in each individual spit. Some of the basic observations based on the table's evaluation follow. The upper three spits (the topsoil) of the test pit in the polygon 10120 (ShFS01) contain less pottery than the two lower layers. In ShFS02, while considering the pits performed in the same corn filed, each of them revealed different results while comparing the upper three spits with the first three located under the topsoil. The 10610_01 revealed much lower pottery amount accumulated in the topsoil, while in the case of 10610_02, the contrary proved truth. Both spits however reveal almost the same pottery amount while counting all layers together down to the spit 7 (only nine sherds difference). The area of the scatter ShFS03 points to another phenomenon. While comparing

the three upper layers with the average amount of the material detected during the field survey in each polygon, we obtain different results. The polygon 10783 revealed 321 pottery fragments, while the topsoil contained 171 fragments. In the polygon 10784, 392 fragments were detected, while in the topsoil only 85 pottery fragments were counted.

The material of cultural layers was contained in each test pit into the deepest layers (maximum 200cm). The topsoil was very hardly distinguishable, and the 60cm (three spits) generally corresponds to the depth of ploughing. The deep deposits of the cultural layers might be caused by the location in the alluvial plains and by centuries of soil accumulation slowly burying the ancient landscape. This phenomenon proved in the site of Pastaktepa (ShFS02), a mound which is no longer elevated and its existence is based on the testimony of the local inhabitants. It was an unlikely possibility to excavate beneath a tepa, and to uncover other 200cm of cultural deposits concentrated underground, all without reaching to the sterile soil or to the bed rock.

The other complementary method was usage of total pickups. As it was expected, it enabled more detailed observation of the scatters. The efficiency of the total pickups proved particularly in the TPU 08 by revealing Kushan-Sassanid pottery in the scatter ShFS03, which was during the first year observation attributed to the High Middle Ages period only. In general, a higher amount of material types was found, including fragments of glass, beads, tokens, or a rare stone pestle. In the case of ShFS04, an elevated amount of ceramic waster was found in the pickups located to the east and to the south of the, leaving aside the northern part of the scatter to be an epicentre of the waster dispersion.

Regarding the field cover conditions, the best period for the field survey is autumn, late October and November as the fields are mostly free of all of the vegetation. During our investigation in the early November the work was stopped for three days by a snow storm. However, this was supposed to be a unique weather condition unusual for this part of the year. For the test pits I would recommend earlier period, August and September, the soil is hard, but still it is better for excavations than the waterlogged fields in autumn. The total pickups might be applied in any of these periods, I would say, with the same results. In summer, the sherd is covered by dust, in autumn by clay. In both cases it is difficult to recognize its original color and the type of decoration (except for the glazed ware) without further cleaning.

The crop rotation system, mentioned already many times, enables the investigation of most of the areas with good visibility. If there is a possibility for two-years investigation, I would recommend to survey in August and September different areas every year. The total

pickups, however, have to be performed the same year the systematic field survey is undertaken.

As the result of all of the mentioned above, the systematic field survey proved to be an effective tool for the investigation of lowlands of Sherabad District. The project verified presence of flat scatters in immediate vicinity of tepas, and brought a new perspective to the field survey approaches. A combination of data gained from the investigation of the tepa and from the immediate areas adjacent to the tepa is needed to achieve comprehensive picture of the size and of the chronology of the investigated sites.

The data gained from the systematic field survey will be evaluated altogether with the database of the archaeological sites of Sherabad District which is being prepared by L. Stančo. More detailed studies will be given to the settlement patterns and tendencies, which will be interpreted in the historical background.

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